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AUDIO MEDIA

THE WORLD G PROFESSIONAL AUDIO TECHNOLOGY MAGAZINE

AUDIO-FOR-VIDEO • BROADCAST • INTERNET AUDIO • LIVE SOUND • MULTIMEDIA • POST PRODUCTION • RECORDING
THE INTERNATIONAL BUYER'S GUIDE
A SPECIAL PROMOTIONAL PUBLICATION FROM THE NEWBAY MEDIA GROUP
MICROPHONES 2009
PRODUCED BY
AUDIO MEDIA
In association with:
Radio World
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prosound news
TV Technology Europe

Pepper Sound

Soho's New Mix-King?

Transformers: Revenge Of The Fallen

Big Robots, Big Sound

Summer Hits

Mid-Year Gear Picks

Special Supplement

Microphone Buyer's Guide

A NEWBAY MEDIA PUBLICATION

WORLDWIDE EDITION
ISSUE 223 •JUNE 2009 • UK £3.80

Also: Ableton Live 8 • Tascam DR-07 & DR-100 • Audio Ease Speakerphone 2 • DPA 4099 • Midas Pro 6 Update • Apple Mac Pro • Rycte InVision • Genelec 6010A • Funkhaus Berlin Studio • Britney Spears' Circus Tour • Product Sampler: DAW I/O • Unsung Hero Competition • Broadcast Report: ONDAS Satellite Radio • GeoFocus: Italy • What's Up UK: Upmixing at the BBC • Special Report: Huddersfield Uni' SPIRAL • Cut Scene: Paul Moore At The Develop Conference • Video Guide: Post Production Part 3: Editing • Recording News: Larrabee Gets In On The Matrix • Post News • Broadcast News: A Refreshed BBC • AMSR News: British Rock In Demand • . . . And More!

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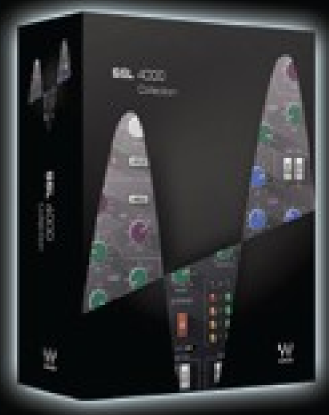

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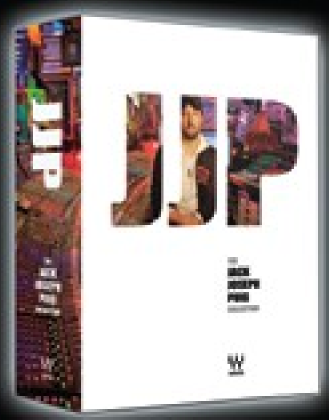

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- PuigChild 670
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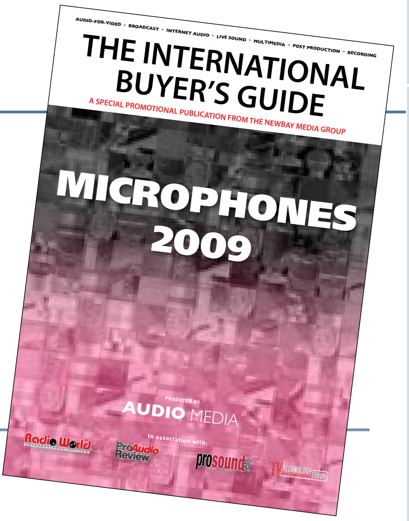

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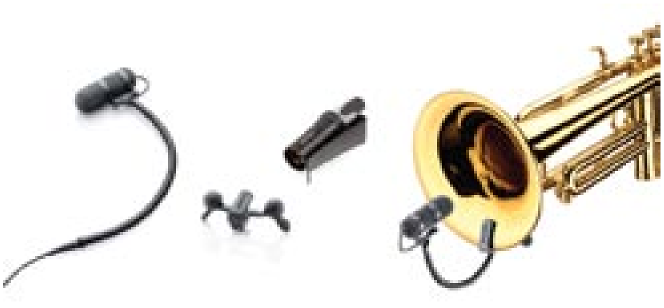

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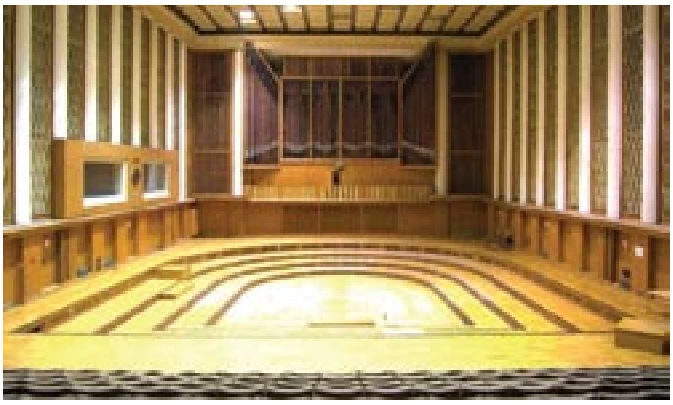

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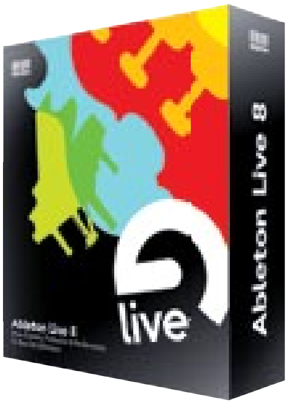

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leader

Hobbies are things you do when you're not doing other stuff. Most of the time. The other thing about hobbies is life signs – the imperative to grow and feed. Collecting is the obvious example, but any hobby seems to require feeding with widgets in order to remain fluid and interesting. Model train enthusiasts would never be satisfied with one working train and some track; car enthusiasts aren't defined only by the fact that they own a car and can drive; even many of the sports and 'field' hobbies have equipment, tools, and spares that rarely see the light of day. Indeed, that's a defining moment in a hobby – when you can genuinely say 'I think I may have something that'll fix that' and proudly open your box of bits and produce a reverse-thread noodle-flange that you once bought 'just in case'.

I think I would offer this 'hobbyness' as exhibit A to at least partly explain the massive amount of stuff available to to the audio practitioner. You see, many people see the audio industry as populated by people who would be doing audio even if they weren't being paid for it. And isn't that a substantial part of what defines a hobby? I think I've made this point before, but for a different reason.

This time round, I mention it because it's the only answer I can come up with when someone asks me why there are so many microphones on the market, for example. There is obviously demand because there aren't many mic manufacturers that have gone under lately. You could possibly list a fair number of types, innovations, variations, frills, and price brackets that would explain away a substantial number of them, but not, I contend, anywhere near all of them.

That leaves the conclusion that no matter how many microphones you've got, you can always find a reason to buy another one.

I quite like that idea, because it says something very nice about the population of the audio industry. Somewhere in your DNA is a hobbyist gene – and that is a motivation that often transcends necessity, minimum effort, and even cash. How many jobs have that inherent satisfaction?

On a *completely* different note, did I mention we've recently finished the *2009 International Buyers' Guide To Microphones*? You can download it from the website, or email subs@audiomedia.com with a request for the print version. The Monitors equivalent for 2009 is also ready to go.

Lastly, I'd like to ask you all to do your audio duty, and cast your vote in the Conch Awards, Nominations are just about done, and voting opens on June 22. If you nominate in the *Audio Media* Unsung Hero category, you might even win stuff (see page 30).

Paul Mac, Editor

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*Within Broadcast & Production

NEW USER

Umbrella Media and Lauten Audio

Industry veteran Andy Waterman recently acquired a pair of Lauten Audio Clarion microphones for Umbrella Media Inc. studios. Waterman chose the Clarions for their unique characteristics that were the perfect match for the recording and production studio's own inimitable attributes. Brian Loudenslager, founder of Lauten Audio said, "Andy and Umbrella Media have carved a niche within the industry, and Lauten Audio is doing the same. We are both offering something unique that no one else can touch."

Umbrella Media Inc. Studios

www.umbrellamedia.biz

Lauten Audio

www.lautenaudio.com

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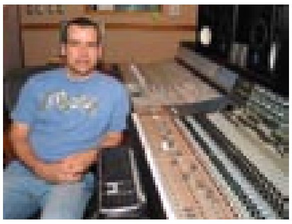
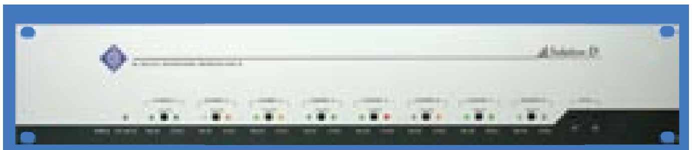
Tonelux's Seamless Integration



Jeff O'Rourke, of Rourketown Studios, California, has invested in a Tonelux Design console to work alongside the existing Digidesign D Command. The unique configuration features the analogue and digital surfaces either side of a centre section that incorporates metering and automation master control. O'Rourke explains, "I spend all my time on the Tonelux when I'm mixing. I have a dedicated EQ and compressor wired inline for every insert on the Tonelux, so when I hit the insert buttons on the console everything is right there, ready to go.

www.transaudiogroup.com



NEW PRODUCT

Neumann DMI-8

Neumann has released the new DMI-8 multi-channel digital microphone interface, effectively an eight-channel version of the two-channel DMI-2. Ease of set-up is the name of the game here, as well as lower weight and space requirements than analogue systems. The new interface benefits from the same features as the DMI-2 with AES 42 to EBU conversion, synchronisation of mics without a sample rate converter, automatic word clock or AES 11 synchronisation, sample rates from 44.1kHz to 192kHz, plus control and storage of settings via Mac or PC. New features include cascading of up to 128 channels, level meter and gain setting on the front panel, D-sub 25 outputs with Tascam and Yamaha pin assignments, and an optical ADAT interface. Like the DMI-2, the new unit can be used with any microphone that complies with the jointly established AES 42 standard. Wolfgang Fraissinet, President of Marketing/Sales at Neumann Berlin commented, "The introduction of the new interface once again significantly reduces the cost per channel for digital microphones."

Neumann Berlin
+49 (30) 41 77 240
www.neumann.com

NEW PRODUCT

Sennheiser HD 380

Sennheiser has launched its newest professional headphones, the HD 380s, designed for sound engineers, producers, and musicians. The collapsible headphones boast a frequency response of 8Hz to 27kHz, plus audio signal reproduction up to 110dB. The closed-back design attenuates external noise by up to 32dB, further endearing them to audio professionals working in noisy environments. The headphones also feature the company's proprietary 'Eargonomic Acoustic Refinement' (E.A.R.) technology to ensure optimal channelling of sound, further augmented by slightly inclined acoustic baffles that guide the audio signal directly into the ear canals. Weighing in at just 220 grams, with soft padding on the ear cups and headband, these are guaranteed to stay comfy throughout the most gruelling of monitoring sessions.

Sennheiser

www.sennheiser.com

NEW BUYERS GUIDES

Microphones and Monitors

THE INTERNATIONAL BUYER'S GUIDE
MICROPHONES 2009
THE INTERNATIONAL BUYER'S GUIDE
MONITORS 2009

Audio Media has two new Buyers Guides out this month, both packed with a condensed overview of everything there is to know about the monitor and microphone markets. The edifying editions are available for download at the *AM* website, or you can e-mail subs@audiomedia.com to request your very own copy.

www.audiomedia.com

……

NEW PRODUCT

ESI Audio Midimate II

ESI Audio has launched Midimate II, a USB 2.0 MIDI interface cable with up to 32 input or 32 output channels for PC and Macintosh systems. The device features a USB MIDI interface and two MIDI connectors that can work independently as inputs and/or outputs.

www.esi-audio.com

……

NEW WARRANTY

Adam Audio

ADAM PROFESSIONAL AUDIO

Adam Audio has announced that all loudspeakers manufactured by the company now carry a five-year (active systems) or ten-year (passive systems) warranty. The new warranty conditions apply to all new products bought after April 1, 2009.

www.adam-audio.de

……

Ultrasone Kits Out Future Rockers

Ultrasone has donated its DJ1 and DJ1PRO headphones to the Rock & Roll After School, a Pennsylvania-based music school where kids aged eight to eighteen can learn to play, perform and create their own music.

www.ultrasone.com

NEW SERVICE

Larrabee Studios

Larrabee Studios in California has added a production room featuring a Solid State Logic Matrix console to its three existing SSL XL 9000 K series rooms. The room provides artists and producers with a more intimate space for composition, working on a part or experimenting with a sound. The Matrix is being used with Pro Tools to ensure that that all work done in the production room can be made available to one of the larger rooms, thus ensuring efficient workflow throughout the facility. The space replicates a home or project studio working model that owner Kevin Mills believes is more suited to creative sessions. He commented, "We wanted to provide a room that addresses this way of working within a commercial studio and Matrix was the console of choice for the project… Anyone can build something small in their bedroom or garage, but there is no substitute for controlled acoustic environments and high level microphones and electronics."

Larrabee Sound Studio

+1 818 753 0717

www.larrabeestudios.com

Focusrite Launches Saffire PRO 24

Bolstering Focusrite's burgeoning series of FireWire audio interfaces is the new Saffire PRO 24. The unit comprises two Focusrite preamps that benefit from 25 years worth of mic-pre innovation, combined with cutting edge mix control software and FireWire interfacing technology. Users can also look forward to a plethora of additional extra I/O options that include two analogue inputs, six analogue outputs, ADAT inputs, stereo SPDIF I/O, and two virtual 'loopback' inputs for routing digital audio between software applications. The company proudly state that, "Focusrite's Saffire PRO 24 is designed to capture every subtle nuance of your recordings, transferred seamlessly and effortlessly into the digital domain, leaving you to enjoy the freedom of a creative modern music making experience." The company has also announced that the Liquid Saffire 56 audio interface is now shipping.

Focusrite

www.focusrite.com

Thermionic Culture Receives Generous Birthday Praise

Thermionic Culture has celebrated its 11th anniversary in style with the release of the Culture Vulture Anniversary Limited Edition and the Little Bustard. The company can also revel in some rave reviews of its Fat Bustard valve summing mixer. Producer, Engineer, and Mixer Peter Katis (Interpol, The National, Frightened Rabbits) enthused, "It is HUGE sounding. It is simultaneously coloured and crystal clear." Matching Katis' praise is Mike Crossley (The Enemy, Arctic Monkeys, Razor Light) who commented, "I adore this box. My track counts are getting smaller whilst my sounds are getting heftier and deeper".

Unity Audio

www.unityaudio.co.uk

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ISA One

Classic Microphone Pre-amplifier with Independent D.I.

The original Focusrite consoles were custom built for a few discerning studio owners, like Allen Sides of Ocean Way, Hollywood. Their unique sound has contributed to countless gold and platinum recordings over the last two decades.

The ISA110 microphone pre-amplifier formed the cornerstone of the original consoles. The new ISA One shares the same pre-amplifier topology, featuring the original Lundahl LL1538 transformer and bespoke Zobel network.

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www.focusrite.com/ISAOne

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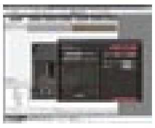
Focusrite
www.focusrite.com



Users of Merging Technologies' Pyramix workstation can now work directly with Dolby E-encoded audio files, thanks to the release of updated VST plug-in versions of Minnetonka Audio's SurCode for Dolby E encoder and decoder software. The update allows encoding of Dolby E audio files directly from a multi-channel Pyramix session, which can even be carried out in real time on a live input. Furthermore, the plug-in may be used directly on the Pyramix project timeline to decode a two-channel Dolby E file into multi-channel surround audio information.

Merging Technologies
+44 (0) 208 9416547
www.merging.com

Diary of Events

July 14-16
Develop Conference
Brighton, UK

July 16-18
PALME Asia
Suntec, Singapore

July 17-19
NAMM Summer Session
Nashville, USA

August 23-24
The PAL Showcase 2009
Toronto, Canada

Euphonix is Console of Choice at Dominant Hollywood Studio

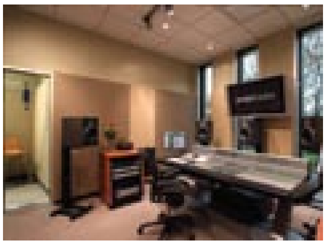
Todd-AO, one of the world's leading audio post production companies, has installed two dual-operator Euphonix System 5 digital audio mixing systems in Stages 1 and 2 at its Hollywood facility. The two new consoles add to the six Euphonix systems already in operation, and Bill Johnston, SVP Engineering CSS-Studio, believes they play a key role in Todd-AO's continuing success. "One way Todd-AO maintains a dominant position in Hollywood's high-end feature film market is by being able to respond decisively to the evolving needs of our clients. Euphonix consoles help us to do that. Euphonix consoles' combination of integrated DSP and native workstation control gives us a unique edge." Specifically configured for motion picture mixing, the System 5 digital film console offers an uncompromising digital audio system that is easy-to-learn and designed for fast access to film-specific mix controls. The system can be fitted with a film style monitoring panel including pec-direct switching and joysticks.

Euphonix
+1 (650) 855 0400
www.euphonix.com

Nottingham's Spool Post Gets White Treatment

Acoustic and studio design consultancy White Mark Ltd. has decked out the new audio post production facility, Spool Post, in Nottingham's very sophisticated new digital media business centre, Antenna. The new-look Spool incorporates a Dolby Digital 5.1 approved film dubbing and mixing theatre, a stereo mixing suite, a voice over booth and Foley stage, as well as three additional editing suites, all of which are linked to the main theatre so that projects can be easily transferred from one room to another. Spool began life as a music recording studio but now focuses on sound to picture, and has worked with an impressive list of clients including Universal Pictures, BBC, Warp Films, HBO, UK Film Council, and Film 4.

Spool Post
+44 (0) 115 859 9806
www.spoolpost.com



Paragon Studios, Tennessee, has expanded its world-class recording studio by adding a Digidesign D-Command ES Console to Studio C. The console is part of an impressive upgrade that includes more recording elements, inside racks, a new patch bay, outputs, a producer's desk and single processing gear. The room will still stay configured for 5.1 and will also feature upgraded HD picture playback options.

www.paragon-studios.com

Audio post production facility Mark Tanner Sound recently acquired a Fairlight Constellation XCS media production system, as well as a Fairlight CC-1 upgrade for its legacy Fairlight Dream system. Mark Tanner said, "When I realised the power of the CC-1 and Constelation XCS in the area of file interchange I was really excited." The facility specialises in documentary and film work with recent work that includes the popular *Mythbusters* series.

www.fairlightau.com

SONIFEX
Manufacturers of Audio & Video Broadcast Equipment

REFERENCE MONITOR

1U Rack Monitor
With Dolby® E Decoding

The new version of the Reference Monitor can decode a Dolby E or Dolby Digital audio stream allowing you to monitor visually 8 or 5.1 audio channels respectively and to monitor audibly any 2 of those channels.

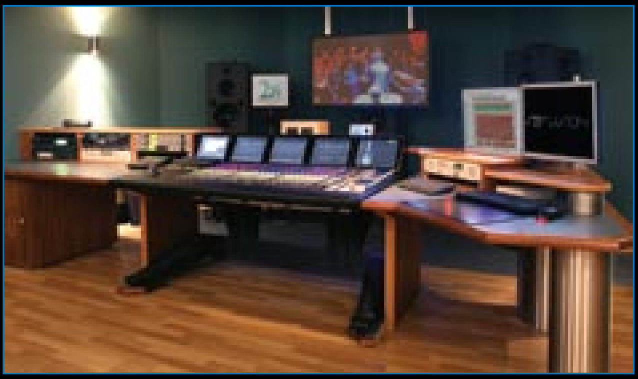
- Decode Dolby E or Dolby Digital audio streams.
- Monitor visually 8 or 5.1 channels.
- Monitor audibly any 2 channels.
- De-embed from HD/SD-SDI.

* TM Dolby Laboratories

For further details of the Reference Monitor range, visit our website at: www.sonifex.co.uk

SONIFEX
www.sonifex.co.uk
+44 (0)1933 650 700
sales@sonifex.co.uk

Pinewood Studios Group
Dual - Operator System 5



2nd Sense – *S5 Fusion*

One Vision

With a commitment to quality, a dedication to performance, and a high standard of excellence, Euphonix studios– of any size – epitomise world class performance for music, feature film, and HDTV audio post-production. Thanks to the EuCon protocol, Euphonix consoles and controllers deliver the perfect combination of powerful DSP and external DAW control demanded by today's computer-based workflows. Come share our vision of a superior working environment.

Wave Studios – *System 5-MC*

50 : 50 Studios – *Artist Series MC Control & MC Mix*

www.euphonix.com

Euphonix

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Junger Supplies Magic at STN

Satellite Telecommunication Networks (STN), which provides play-out and transmission services to broadcasters worldwide from its facilities in Slovenia, has invested in Jünger Audio's LEVEL MAGIC technology to ensure the quality of its audio signals. After researching various options, STN chose Jünger Audio's b46 four-channel digital dynamics processor. This unit incorporates the company's sophisticated LEVEL MAGIC adaptive level control algorithm, which is designed to adjust the level from any source at any time, with no pumping, breathing, or distortion.

www.junger-audio.com

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NEW PRODUCT

Rycote Foam Windshields

Rycote has released a new range of foam microphone windshields for use with microphones of all types, including small- and large-diaphragm mics, hand-held reporter's models, and shotgun mics. This is the first time that the company has harnessed foam as a design material, with advantages that include resistance to moisture and sunlight, and up to 20dB of pop and wind attenuation depending on conditions (with no concurrent high-frequency loss). The option to custom print company logos on a variety of colours is also available.

www.rycote.com

BBC Refreshes Audio Infrastructure

VCS has confirmed a framework contract with the BBC to provide audio editing and playout solutions on a pan-organisational basis. The anticipated value of the framework contract between 2009 and 2013 will be in the range of £10 to £15 million.

During that time, most of the BBC's main audio editing and playout systems will require a technology refresh. The VCS operational business MBS (Media Broadcasting Solutions) has now been selected as the sole supplier of the manufacturer's dira! products, so the BBC can move to one single scalable, joined-up, pan-BBC solution that integrates with other systems to create a true multimedia production environment.

It is intended that the Audio Editing and Playout systems will be installed across all BBC sites, both within the UK and around the rest of the world.

This may bode well for UK-based SADiE, which has been the craft editor of choice for VCS since Audio Media reported on the Tapeless Project back in 2006. That project's aim was to implement a file-based workflow from ingest to playout, with SADiE and VCS uniting to develop the technology necessary to achieve the transition. Since this collaboration, SADiE and VCS have worked on a number of projects both old and new. Graham Boswell, Director of Sadie commented, "Sadie has an ongoing contractual relationship with the BBC. We recognise that there are a lot of changes in the pipeline, and SADiE is working very hard to respond to them within and without current contractual relations."

VCS

+49 234 92580

www.vcs.de

NEW INSTALLATION

Axia Provides the Right Elements at MTV

MTV Networks' Country Music Television has purchased two Axia 20-position Element 2.0 mixing consoles for use in its Nashville studios. The consoles are also joined by Axia's new PowerStation integrated console engines and the company's PathfinderPC router control software suite. Powerstation caused a stir during its launch at NAB this year, winning awards for its seamless integration of audio I/O, console CPU, mixing engine, Ethernet switch, and redundant backup power into a single, fanless chassis. Element 2.0 is the latest incarnation of the company's modular broadcast console and, with over 1,500 Axia consoles already on-air around the world, it looks set to continue its predecessor's successes.

www.axiaaudio.com

International RME Distributors

North America

USA, CANADA: Synthax Inc. . www.synthax.com

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Brazil: Um Instrumentos. . www.uminstrumentos.com.br

Europe

BOSNIA/HERZEGOVINA: Audio Video Consulting d.o.o. . www.almar.bg
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CROATIA: Audio Video Consulting d.o.o. . www.avc.hr
CZECH REPUBLIC: Disk Multimedia s.r.o. . www.disk.cz
DENMARK: Soundworks . www.soundworks.dk
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GREECE: Logothetis Music . www.logothetismusic.gr
HUNGARY: Midisoft Studio Kft. . www.midisoft.hu
ICELAND: Tonabudin Ltd. . www.tonabudin.is
IRELAND: Future Sounds . www.futuresounds.ie
ITALY: MidiWare Srl . www.midiware.com
KOSOVO: AVC Group sh.p.k. . www.avc-group.cc
LITHUANIA: Midiaudio Ltd. . www.midiaudio.com
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SPAIN: Microfusa . www.microfusa.com
SWEDEN: Fitzpatrick Import Group S.A. . www.fitzpatrick.se
SWITZERLAND: Music Network GmbH . www.musicnetwork.ch
TURKEY: BL Muzik Co. Ltd. . www.blmuzik.com
UKRAINE: Real Music Ltd. . www.realmusic.ua
UNITED KINGDOM: Synthax Audio UK Ltd. . www.synthax.co.uk

Asia and Pacific Rim

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AUSTRALIA, NEW ZEALAND:
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CHINA: Central Music Co. . www.centrmus.com
HONG KONG: Central Music (HK) Ltd. . www.centrmus.com.hk
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INDONESIA: M-Station . www.m-station.biz
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Middle East

ISRAEL: Music-Shop LTD . www.music-shop.co.il
UAE, EMIRATES: Thomsun Trading Est . www.thomsun.ae
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Both units provide separated driver stages for the analog TRS and D-sub outputs. When selecting +24 dBu the balanced D-sub connector outputs will provide the higher output level while TRS stays at the +19 dBu setting.

Remote Control. All M-series converters are fully remote controllable and configurable via MIDI. Control software for Mac and PC is supplied and allows easy remote control, also with MIDI transfer via MADI (MIDI Extender).

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www.rme-audio.de
Engineered and manufactured in Germany

RME

UK distribution
Synthax Audio UK Ltd.
www.synthax.co.uk

Looking At Forward Studios

A relative newcomer to the international recording sector, Forward Studios, driven by an ambitious owner, has much to offer, reports JIM EVANS.

Rome's Forward Studios is a multi-studio residential studio complex that bucks a number of trends. Not yet five years old, it was designed and built at a time when – worldwide – more commercial studios were closing their doors rather than opening. In its relatively short existence, it has built an impressive roster of clients, attracted by a package that blends state of the art technology with tasteful surroundings.

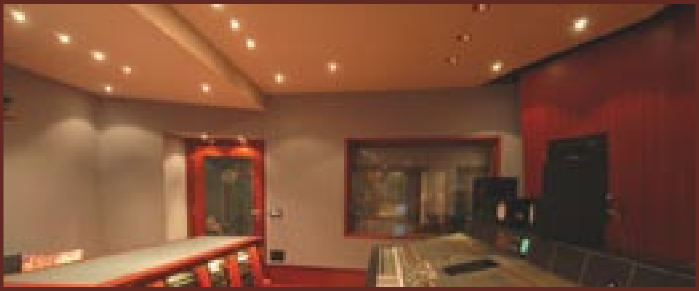
Owner Massimo Scarparo, a musician and businessman, has ambitions to develop the facility as an international destination studio. It certainly has all the necessary ingredients.

Location is a prime attraction. The studios are located at 330m above sea level in the hills just outside Rome. The studios are only a few kilometres from the centre of Rome, "20 minutes to the Colosseum", notes Scarparo. The complex is close by Ciampino airport and 25 minutes from the intercontinental airport of Rome Fiumicino.

The studios are in a complex that includes accommodation, gym, and a wellness centre. They are surrounded by some of the best hotels, restaurants, and entertainment facilities of the capital. Within the studios, spacious and airy rooms with high-class decoration together with the relaxation zones guarantee a high level of comfort. All the studios have independent entrances so that more than one production can take place simultaneously.

They overlook the lush gardens and are connected by a lift to the upper floor, which houses the management offices and office suites available for clients' use.

The project, surely the most ambitious Italian studio build since Capri Digital, originates from the desire of Massimo Scarparo to create a 'Sound Factory' in his own country that could "equal the most prestigious studios worldwide". After years of technical research, collaboration and visits within the sector, this is now a reality.



The flagship studio, the Caesar room features a 90m² multi-channel 5+1 and 7+1 control room complete with an AMS Neve 88R console with Genelec 1036A monitoring.

The Aurelius Room has a 45m² multi-channel 5+1 and 7+1 control room with an SSL 9000J console and Genelec 1034A monitoring.

The third studio, originally the Augustus Studio, has now been converted into a top of the range mastering suite, adding yet another service to Forward's package.

The desire to create an exclusive oasis in extraordinarily beautiful surroundings, yet perfectly integrated in the metropolitan area, led to the natural choice of the site the studios are built on: the conversion and reconstruction of an antique three storey villa built in the Roman style, rich in exclusive and sometimes quirky details.

The total internal area that the studios are built on equals 1,500ft². The foundations that are more than two metres deep, are made up of a layer of travertine stone, volcanic rock, and cement. The reinforced concrete floating islands are found above this layer, these are then supported by a complex sound proofing system made up of a thick web of calculated release rubber supports; the so called 'floating islands' support the shells of the control rooms, the Live area, and the ISO booths.

The masonry of the studios is made up of very heavy and thick blocks of volcanic rock (approx. 10,000), which rest on the 'floating islands'. The rooms, built purposefully in this way, though adjacent and communicating, are not in structural contact and thus guarantee maximum soundproofing. All of the circuits are made up of deeply positioned elastically joined conduits, so to avoid all types of unwanted transmission. "The air con system with the highest level of mechanic and aerodynamic noise reduction, guarantees the control of parameters –temperature, speed and humidity – individually for each area. It is with this principle that we created separate systems for each area, thus avoiding acoustic returns," says Scarparo.

The cabling is the same for all the spaces, allowing the operators to interact with each studio independently from the control room where they are working. The studios are separated by big glass ultra white surfaces that are highly soundproofed, thus allowing the maximum visibility and interaction of those participating in the recording project.

MEDIA MATTERS

Italy's blend of politics and media has made headlines inside and outside the country, with watchdogs and some politicians pointing to Prime Minister Berlusconi's influence over both public and private broadcasting.

The public broadcaster, Rai, has traditionally been subject to political influence, and Berlusconi's Mediaset empire operates Italy's top private TV stations. Between them, Rai and Mediaset effectively control Italy's TV market and are a potentially powerful political tool.

A media law, passed in 2004, heralded the creation of new digital TV channels and the partial privatisation of Rai. Critics said the bill reinforced Mr Berlusconi's hold on the media.

Rupert Murdoch's News Corp secured a virtual monopoly of the pay-TV sector when it launched Sky Italia in July 2003. The service was created through the merger of two existing pay-TV services – Stream and Telepiu.

Around 2,500 commercial radio stations broadcast in Italy. A few of them have national coverage; most are music-based. They share the airwaves with public broadcaster Rai's radio stations.

Finland's broadcasting sector is digitising its transmission network. Analogue terrestrial TV broadcasts were switched off in September 2007. Public YLE, funded by licence fees, operates radio and TV networks. New stations have emerged in a market once dominated by YLE and the established private broadcaster MTV. Pay-TV channels are provided by pan-Nordic operator Canal+.

VITAL STATISTICS

FULL NAME	Italian Republic
POPULATION	59 million (UN, 2008)
CAPITAL	Rome
MONETARY UNIT	1 euro = 100 cents
MAIN EXPORTS	Machinery and transport equipment, chemicals, clothes, wine
GNI PER CAPITA	US $33,540 (World Bank, 2007)
INTERNET DOMAIN	.it
INTERNATIONAL DIALLING CODE	+39

JBL Reinforces Primo Maggio Festival

Audio system provider Madema deployed a large, multi-array JBL Vertec system for the Primo Maggio festival in Rome on May 1. The free annual public event commemorates the Italian Labour Day. Held in Rome's Piazza San Giovanni in Laterano, the temporary stage for Primo Maggio is traditionally set up in front of the historic Basilica of St. John Lateran, the first church to be built in Rome, with first construction dating to 313AD.

Once each year, the historic religious site comes to life as hundreds of thousands of live music fans converge on the plaza. Many arrive early, camping in the square to claim the best seats. This year's event drew a crowd estimated at more than one million spectators, largely due to the special appearance by legendary rock singer Vasco Rossi. In addition to Rossi and his band, performers for 2009 included Edoardo Bennato, Alessandro Mannarino, Robben Ford, Caparezza, and Subsonica. Featuring 30 different bands in total, the event was broadcast live throughout Europe on RAI to another estimated four million viewers.

As it has for the past several years, Madema exclusively handled all concert sound reinforcement duties for Primo Maggio. The company's event sound system design featured a total of 127 Vertec system enclosures. The main PA system was formatted as a left-right configuration of 18 enclosures per side, comprising VT4888DP-AN midsize powered line array elements with DrivePack technology, with three additional VT4888DP-AN line array elements provided for front-fill. The main arrays were each flanked by 12 VT4880 full-size arrayable subwoofers, flown in arced companion arrays. For additional low-frequency reinforcement, 24 VT4880A ultra-long excursion ground-based subwoofers were spaced along the front of the stage.

All non-powered subwoofers were driven with Crown Macro-Tech MA5000VZ power amplifiers, and a total of 700,000 watts of peak power was available for the overall system. The Madema team utilised Harman's HiQnet System Architect software for configuration and control of the system.

L-Acoustics at Sala Santa Cecilia

Sound Designer Andrea Taglia has specified and designed an L-Acoustics ARCS system, which has been installed at the Parco della Musica in Rome, in the venue's 2,800-capacity Sala Santa Cecilia.

Acoustically, this project posed some major challenges. Designed by Italian architect Renzo Piano, the building took 20 years to construct, and by completion the function of the different rooms had changed. Originally intended to provide stunning acoustics for large orchestras, the Sala Santa Cecilia has been drafted into service as a multi-function concert/convention venue due to Rome's lack of suitably-sized halls.

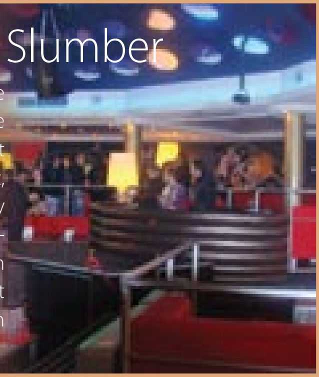
However its acoustic design, with orchestral use in mind, leaves Sala Santa Cecilia with a 2.5/2.8 reverb – perfect for symphonic music but impossible in a multi-purpose room. It was this dilemma that Taglia undertook when contacted by Sonus Audio Services of Rome, a specialist in audio rental and installation for classical music and theatre, who commissioned him to design a no compromise sound system to solve the problems.

"We tested several solutions and agreed that the best was an approach based on several small loudspeakers, all under individual control so they could be switched on or off depending on audience presence," he says. Taglia's design features a left/right system of two ARCS cabinets and a dual 18-in SB subwoofer per side. A front fill system of eight-in L-Acoustics coaxial cabinets helps confine the sound image to musicians on stage, while single sections of the side balconies are covered by six 115XT HiQ coaxial enclosures. The balcony has a left/right system of two ARCS per side. The system is rigged in a sophisticated array with 32 motors controlled via wireless remote.

Since installation the system has worked to seamlessly cover events from seminars – where providing intelligible speech in a hall with 2.5/2.8 reverberation time is a real challenge – through to jazz, pop concerts, and the new Rome Film Festival.

Disco Raises Sleepy Town from Slumber

The Baladì Disco has turned the once sleepy Italian town of Torre San Patrizio into a rallying point for people from the entire Marche region. After an extensive and lavish renovation by Architect and Designer Massimo Cadamuro, the disco now boasts a restaurant, four differently equipped dance floors designed to cater to a variety of musical tastes, and a spacious lounge. With help from Milan-based specialists dSound PRO, the Baladì management put its faith in equipment from Dynacord – a balanced spread of Alpha Concept loudspeakers, Pl-one, and D-Lite cabinets, and power amplifiers from Dynacord's LX and CL series.



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Mixing It Up

KEVIN HILTON reports on the BBC's 5.1 on up-mix strategies.

As advanced as technology gets, compromises still need to be made to make everything work. Up-mixing is the prime example of this in 5.1 surround sound, and at best has been seen as a necessary evil in broadcasting to have a consistent output without too many, if any, stereo islands in the multi-channel sea.

DVD and, perhaps more compelling these days, HDTV are behind the move to this newish audio technology. The UK is now following the lead of the US and Japan in producing programming with full, original 5.1 soundtracks, but broadcasters in all countries are struggling with tighter budgets – and the issue of stereo archives.

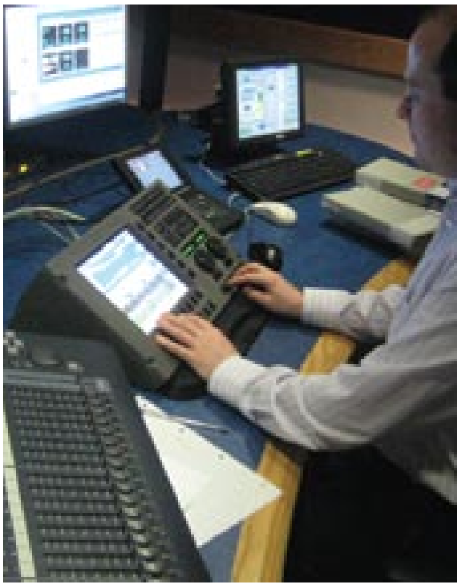
Up-mixing is regarded by many broadcasters, including the BBC, as a viable solution to the problem. BBC Studios and Post Production is now running an HD 5.1 Prep Room within its audio department at Television Centre (TVC) in west London to prepare the 5.1 sound-tracks of bought in films and programmes for transmission. Features and imported episodic dramas like *Mad Men*, *Heroes* and *Damages* are prepared for broadcast in a linear editing suite, where advertising breaks are removed and credits sequences are shortened. The corresponding 5.1 sound-track then has to be adjusted to fit the pictures, working to an EDL created by the Video Editor.

TVC has three dubbing theatres; Red Theatre and Blue Theatre are fully 5.1, with Green Theatre slated for an upgrade in the near future, but the intention was not to tie these suites up with nuts and bolts work. The Prep Room is used to create 5.1 mixes, both for HD programmes with stereo sound-tracks and material that has a compromised sound-track.

"Sometimes we get a film with 5.1 that doesn't exactly match the pictures in a scene," explains Dubbing Mixer Chris Graver, "or there's drop-out. If we can't get another copy of the original sources or steal sounds from elsewhere in the film we have to up-mix from the stereo track to fix the hole, creating something that we know is of good integrity."

Graver has been instrumental in the BBC's gradual move to 5.1, mixing the sound-tracks for the natural history series *Oceans* and the HD Channel's 'barker' promo, which plays on a loop outside scheduled programme hours. The current HD barker features some of the BBC's flagship high def shows, including *Oceans,* the updated comedy Reggie Perrin and the *Doctor Who* Easter special *Planet of the Dead*. Some of the programmes featured on the barker were originated in 5.1, while others had to up-mixed from stereo. Graver says he is seeing the number of 5.1 productions in the UK increasing but there are still 'not loads'. Andy Quested, head of technology for BBC HD, says the official policy for the HD Channel is that surround sound is not yet a requirement but it is preferred where possible.

Some viewers watching in HD might not have 5.1 systems, so there will be a stereo mix as well. But, as sound team leader Edurne Bengoa observes, HD pictures benefit from 5.1 sound. The Unwrap algorithm on the Prep Room's TC Electronic 6000 system is used to produce six individual channels from the stereo tracks. These are routed through a BNCS (Broadcast Network Control System) switcher to a Yamaha 02R96 digital console with automated faders and recorded on an AMS AudioFile workstation. BBC Studios and Post Production is standardising on Pro Tools in its dubbing theatres, although Green Theatre still has an Audio File for the time being. Graver says the AudioFile has better machine control than its rival, making it the right choice for the up-mixing room. Monitoring is on PMC loudspeakers.



The left and right channels are left as they are for stereo, with atmospheres from the front placed in the rear channels. As in standard 5.1, dialogue in rooted in the centre channel, which gives the Dubbing Mixer greater control. "If some dialogue is buried in the mix we can give it a bit of a nudge without all the music coming up as well," says Graver. There has been discussion over whether to stick with a dedicated centre dialogue channel or create a phantom centre. Graver is not in favour of the phantom method, preferring the centre channel because "it ties the dialogue to the screen and allows for the wider range of seating positions likely to be found in a domestic environment." The general rule is that an up-mix takes twice the running time of the programme concerned. Once completed the mix is laid back in Dolby E to a master and a clone. Graver says the final result can be outputted to all formats, including X48 and DA88. Graver describes this work as "a bespoke service, not just passing something through a box - it is a craft." He and Bengoa think it is difficult to tell the difference between original 5.1 and up-mixed material; and listening through the HD barker, I was hard pushed to tell which was which.

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Right Round, Baby

An Immersive Multi-Channel Experiment At Huddersfield Uni'

Art meets science at SPIRAL, a new facility at the University Of Huddersfield for the exploration of 25-channel audio and its control. PAUL MAC reports.

The Centre for Research in New Music (CeReNeM) at the University of Huddersfield – part of the university's School of Music, Humanities, and Media – is pushing forward the boundaries of music composition, performance, and interactive control with SPIRAL, its new SRIF (Science Research Infrastructure Funding) funded facility.

Housed in the University's new Creative Arts building, SPIRAL (Spatialisation and Interactive Research Lab) will be the centre of research into spatial and interactive music composition, production, and sensoral control.

Professor Michael Clarke (composition, computer music, synthesis/processing software) and Mr Mark Bokowiec (interactive performance systems, electroacoustic composition, virtual instrument design) are heading up the work that will explore the creative, psychoacoustic, and psychological possibilities of multi-channel audio, as well as the question of how to control the movement of sound in a space.

As a composer and researcher, Clarke has been working with eight-channels for some time now, and has already produced several pieces of 24-channel music including the *Enmeshed* series of works. He sees SPIRAL as an extension to Stockhausen's work with *Octophony*, which used eight speakers arranged at the corners of a cube, giving two levels of height information, as well as the horizontal plane possibilities.

A 25-channel system is not an easy thing to imagine, much less compose for, so SPIRAL gives an opportunity for experimentation and development of complementary control (routing, panning, effects, and so on) systems. One aim would be to take the medium to a public performance situation: "The advantage of actually having a studio to work in to do this, is that we can learn about how to use this space, how to work with it," says Clarke. "The studio is where people can experiment with different ways of programming for that sort of space, and not just in terms of the acoustics of how you move the sound around, but creatively and psychologically, and psychoacoustically."

Spatial control with so many channels is a tricky proposition, as there are many ways to conceive of moving a source around that many speakers. Most of the current work is based in planes. "You could have one wall as one plane," explains Clarke. "You could have the ceiling as another, etc, etc. So you can move the sound around in that plane, then you can move that whole plane around to other walls. Then you can go inbetween, so you get diagonals going across the room and so on.

"Another way is to think of it being a 3D space – you've got one single channel being able to be placed at any point in that space… You could be creating spirals in that space, and moving the source around; then you could have a second channel of sound, which you are also moving around, and the two can dance… so it's like a counterpoint, but a counterpoint that involves a spatial interaction as well as melodic."

Mark Bokowiec, who specialises in control sensors and sensoral control – anything from alternate uses for a Wii to full body sensor performance art, and more – comes into the SPIRAL equation at this point with the physical mastery of the multi-channel space. "We've got quite a lot of esoteric controllers. One of them, which we bought for this space, is called a haptic controller." The term 'haptic' refers to control devices that offer physical feedback to the person using them – whether it be resistance, vibration, or any other sensory feedback. In this case it's a 3D controller, rather like an angle-poise lamp.

For the audio bits, the current development tool of choice is Max MSP coupled with flexible RME-based I/O. The room features three circles of eight Genelec 8240A monitors, four Genelec 7270A subs, plus an additional height monitor (another Genelec 8240A). Each of the 25 speakers can be fed independently or in groups for detailed control over the sound field inside the space.

The department uses Genelec monitoring throughout its music technology facilities, which include three 'Octophonic' studios, three 5.1 studios, and two stereo rooms with associated live rooms.

Professor Clarke noted: "All our studios are based on Genelec speakers. We are familiar with Genelec and we like the sound – a nice neutral sound, very accurate."

SPIRAL makes good use of the Genelec Loudspeaker Manager (GLM) control networking system, which offers system parameter control and acoustic alignment for all networked monitors. Clarke: "It's such a beautiful way of doing it… and having it all digital is obviously a big plus point – you've got no pick up on the cables… the only humm is from the computer."

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A Euro-Radio Reality

ONDAS Media is making fast progress towards a next-gen satellite radio service for Europe. PAUL MAC reports.

The most obvious way to secure market share in a new European satellite radio service is to get your receivers into cars, and that's one of the primary tasks for ONDAS Media at the moment. There are currently three signed agreements for installing ONDAS receivers into Nissan, BMW, and (most recently announced) Renault. The company says it is at various stages of negotiation with other manufacturers – many of whom already have experience of satellite radio roll-out from the US market Sirius XM.

Business-wise, ONDAS reckons that the 'subscriber acquisition cost' (subsidies and revenue share) for its scheme will be only 20-25 percent of that in the US – leading to a potential in-profit outlook only two to three years after launch.

Dave Krueger, CEO of ONDAS Media, is keen to explain that these recent announcements show that the service will not be 'elitist'. Indeed, the Renault agreement includes the manufacturer's affiliates in Eastern Europe and Russia, while Nissan and BMW both anticipate 100 percent of their product lines being equipped.

ONDAS was formed in 2004, and is primarily based in Madrid, Spain, but with UK, German, and Belgian offices. The early development stages of the service have been mainly concerned with defining the technical architecture of the system and the regulatory aspects. The footprint of the transmission will take in all EU member states, as well as other countries within that reach, including Western Russia. A full launch is currently targeted at 2012.

As things stand, it will be an all-digital service capable of audio, video, and 'telematic' (in-vehicle) data. So the ONDAS-equipped vehicle gets data services as well as the main broadcast programming – something car makers are keen to take advantage of.

Krueger predicts a starting line-up of between 150 and 200 channels of programming, and a target penetration exceeding 50 million cars and 30-40 million paying subscribers. Part of the plan includes 'free-to-air' content right from the start, so that there will be a fair incentive for anybody considering the value of satellite radio in a new car.

As far as actual content is concerned, the service will be made up of a mix of re-broadcast content from partners (around 20-30 percent) – mostly under the free-to-air category and re-broadcast 'as-is' – plus original, advertising-free, exclusive content. The latter in the subscription service.

For that amount of content, a big production infrastructure will be required. Krueger revealed plans for seven regional broadcast centres, producing content "to the cultural principles that our market research indicates will be popular."

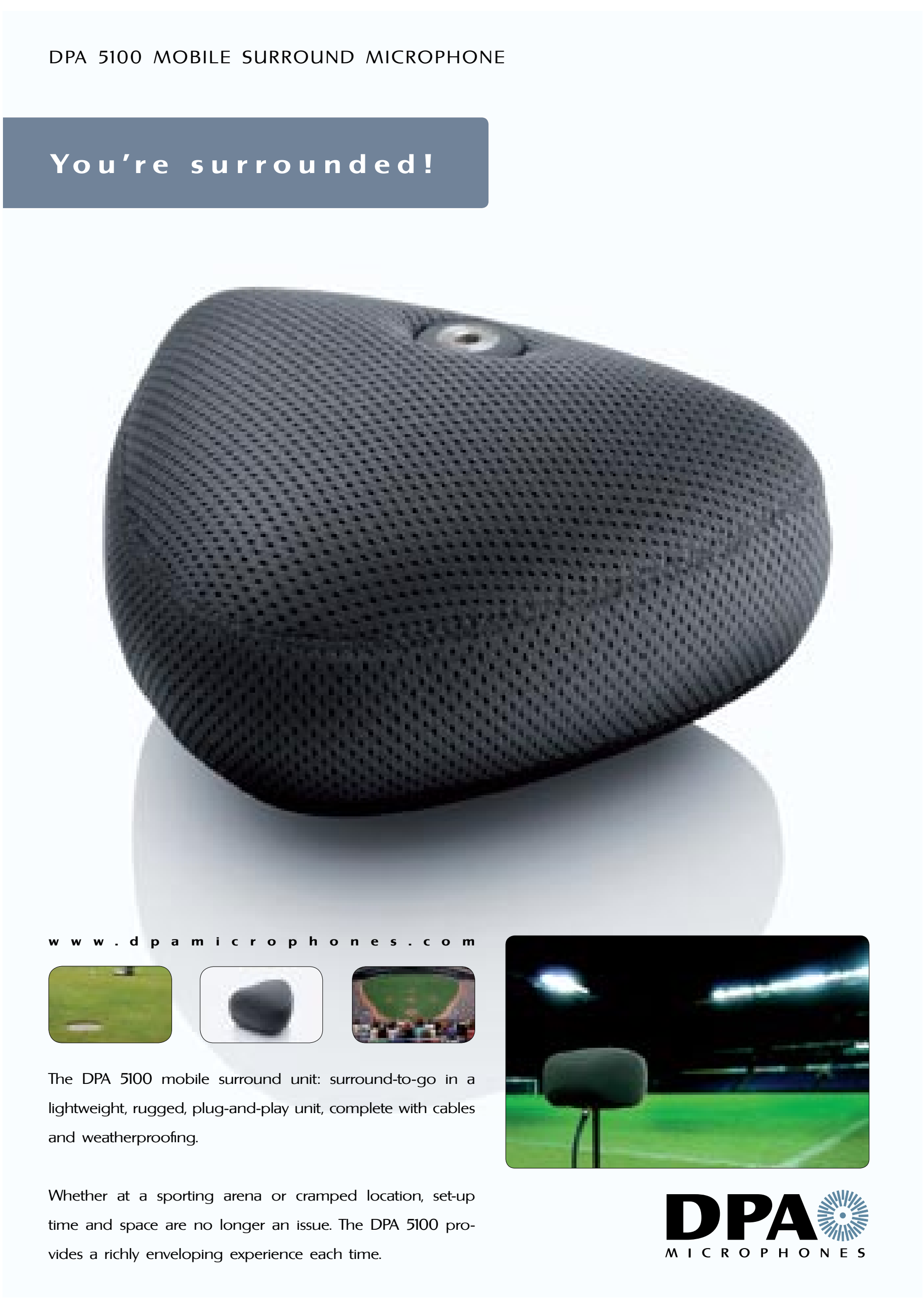
It's estimated that these ONDAS production facilities will come along over the next two years. The long lead time on the launch of ONDAS satellite radio is mostly, according to Krueger, down to infrastructure, and getting radios into cars.

The receiver hardware will vary, but most OEM customers will require local analogue reception and the current generation of digital services. Studies in the US show that once subscribed, over 80 percent of satellite radio customers don't tune back.

The cost to the listener is also to be finalised. Krueger estimates a monthly charge of 10-12 Euros per month, based on market research right across the ONDAS footprint. There will be tiered packages available and a range of prices to suit. Market research in Eastern Europe, for example, suggested 'phenomenal demand' for Western content, conditional on a lower cost – achievable by offering a subset of content.

INFORMATION

Ⓦ **www.ondasmedia.com**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Develop On Track

With the Audio Track schedule finalised, things are winding up for the Develop Conference in Brighton. The conference runs for three days (July 14-16) with the Audio Track on the final day. *Audio Media* will be there as Media Sponsor for the Audio Track, and as a precursor to the conference, we offer a short interview with one of the speakers, an overview of the schedule, and the winners of our conference pass competition (*Audio Media,* April 09)…

Paul Moore is a founding Director of Ardmore Sound, based in Ardmore Studios in Ireland. A former Engineer, Producer, and Director, his aim for the studio is to make 'best in world' sound post-production available in Ireland to Irish and European film directors and producers.

At last year's Develop Conference, Moore, along with Re-Recording Mixer Tom Johnson (based at Ardmore Sound) inspired delegates with a collection of classic film excerpts and discussion on how sound contributed to the narrative of those pieces. This year he's back with more wisdom and real-world examples of inspiring sound. Moore plans to concentrate his efforts on fewer films although more in-depth, but is not committing publicly to any particular projects just yet.

Keynote speakers at Develop 2008.

Audio Media: The premise of the session is to bring some of the art of film sound to the game world?

PM: I suppose my interest in movies and movie sound is the emotional power that sound brings to a movie. So it's more general than putting two sounds together to get this sound, or how did they do this and that sound… It's a creative view, in terms of a broader aspect of how film has successfully used sound, where that success seems to lie…

AM: What is it you think games can learn from film?

PM: Games at the moment are more 'you see it, you hear it', and also more is better. In this respect, sound can be exhausting. You can glance away from the screen, you can shut your eyes, but it's very hard to exclude sound. So I think there's a refining that could be done - and it seems to me that it might be in games' interest as well.

It's sometimes the most obvious things you have to think about hard… and it's not necessarily the sound person's problem. It's the smart directors that are thinking before of all the aspects of a film… it has to be in the script at the beginning.

If you take a step a little bit further back and ask how is sound actually contributing to the emotion of this, that might be useful in terms of being able to have a creative discussion on a more holistic level with the games producers, saying next time you're doing something like this, it might be more interesting to approach it in this way, because then we can bring this to bear on it."

All at *Audio Media* want to congratulate the winners of our competition to win three-day passes to the conference, worth £600 each. John Foster of JFX Sound and Mr J Bryan of Raw Soul Productions will be sampling the delights of Brighton in July.

www.ardmoresound.ie

The Audio Track Schedule: July 16, 2009

There's a packed day planned at Develop for all those interested in game sound. Here's the run-down:

1) **Welcome and Introduction by Develop Advisory Board member and Chair of the Audio Track, John Broomhall.**

2) **Dolby In Games: Every Bit Amazing**

Dolby Games Group's Simon Arnold and Marc Langsman will provide an exposition of Dolby Axon and Dolby Pro Logic IIz. The Axon discussion will centre around the first implementations in Netdevils' *Jumpgate Evolution* and Kingsoft's *Mission Against Terror.*

3) **Real-time Audio: Context Is Everything**

Kenneth Young (Audio Designer, Media Molecule) will explore both the history of game audio, and the advantages and disadvantages of emerging approaches and trends in real-time audio manipulation.

4) **Guerrilla Tactics: Designing Audio for *Killzone 2***

Mario Lavin, Sound Director for Guerrilla Games and the audio guru behind *Killzone 2* discusses his creative and technical approach to the project and what others can learn from it.

5) **Moore's More Story-Telling Power of Sound**

One of last year's most popular and inspiring sessions is back· Paul Moore of Ardmoore Sound will use classic film sound to show how audio can underpin emotional narratives.

6) **Orchestral Soundtracks for Videogames: The Vital Do's & Don'ts For a Successful Orchestral Project**

Allan Wilson plots a path through the avoidable pitfalls, and signposts the tried and tested procedures that will assist in a smoother, more enjoyable, less expensive, and more time-efficient journey to the 'final take'.

7) **Painting With Sound: The Future of Procedural Audio**

Andy Farnell will explain why he believes game audio development is set to eventually move from a data-driven to a generative model in order to cope with the demand for assets and detailed real-time control of sounds.

8) **Gold Blend: Audio Code and Design Working Together for the Perfect Flavour**

Disney Black Rock Studio's Steve Emney and Ciaran Rooney will explore the vital interaction between audio designers, audio programmers, and the game team. Process leaders, the real value of pre-visualisation work, and an efficient path realising the overall audio vision will come under scrutiny.

9) **Audio Keynote: The Runtime Studio in Your Console: The Inevitable Directionality of Game Audio**

Guy Whitmore (Director of Audio, Microsoft Game Studios) will be doing the honours. He'll bring forward ideas on the adaptability of audio in-game and table the possibilities within a complete run-time studio for games.

10) **The 2009 Open Mic Session: What next?**

This is an opportunity for all delegates and speakers to share their views and engage in debate on the future of game audio. Self-opinionated ranting encouraged as usual.

Speakers: Alastair Macgregor, Senior Audio Programmer, Rockstar North; Greg O'Connor-Read, Founder, Music4Games, Inc; Guy Whitmore, Director of Audio, Microsoft Game Studios; Kenneth Young, Audio Designer, Media Molecule

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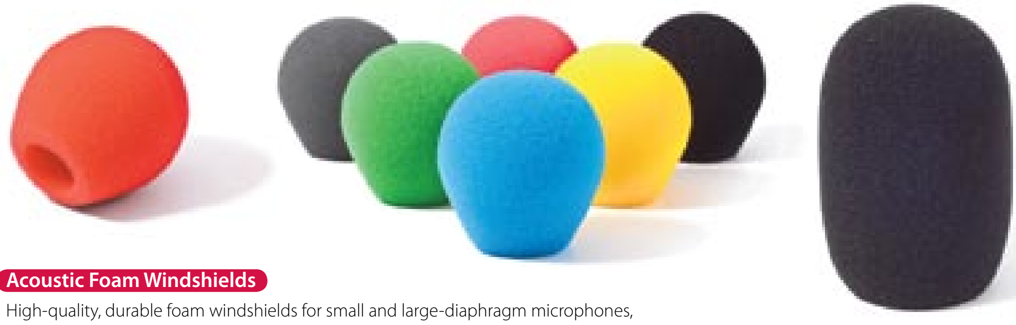

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APPLE MAC PRO

Workstation

Not to be underestimated, STEPHEN BENNETT believes that the new Mac Book's spec is deceptive of its hidden talents, and is capable of much more than would first appear.

If bigger were better, then a Volvo Estate or a Range Rover would be more fun to drive than a Lotus Elise. That this is not so demonstrates that wonderful things can be found in small(er) bundles. The latest Mac Pro is no exception – though on first glance things don't look promising for the new boy on the block. Maximum processor speed 2.93 GHz? Pah! Mine (previous generation, model 3.1) has 3.2GHz! Directly comparing specifications on computers is always a dangerous thing and closer scrutiny reveals that the changes under the hood are more comprehensive than the processor speed implies. The new Intel CPUs make use of hyper-threading which allows the Mac Pro to run twice as many processes simultaneously per core – so the new 8 core Mac Pro effectively has 16 'virtual' cores. The processor speed is also automatically variable, up to 3.3GHz on the review model 2.93GHz Mac, generating a performance boost when needed – which is also helped along by its 8MB of shared L3 cache. Other improvements, such as an integrated memory controller and QuickPath interconnect, which gives the CPU faster access to disk I/O and other systems, all increase the performance of the computer over what one might expect from its modest clock rating.

On The Face Of Things…

Visually, the review MacPro is almost identical to the previous generation apart from the review machine's installed ATI Radion HD 4870 video card – which, in the process, replaces one of the earlier Mac's dual DVI ports with one featuring a new Mini DisplayPort format. This card is well placed to take advantage of the upcoming Snow Leopard's GPU (Graphic Processing Unit) processing abilities, which should enable programmers to offload some CPU-type processing onto the graphics card. The basic system comes with the capable GeForce GT 120 with 512MB of GDDR3 memory – the Radion is available as an option. The 30-inch Apple Cinema HD Display (or any other DVI-based displays) are all supported out of the box.

Inside, the Mac is as neat and well designed as ever, with cards and hard drives easily removed and installed. There are four direct-attach cable-free hard drive carriers that can take up to 4TB (TeraByte) of internal storage when using 1TB 7200-rpm Serial ATA drives. There's also an optional cable-free Mac Pro RAID card available, which delivers performance up to 550MB/s and allows the four internal drive bays to be set up in RAID 0, 1, 5, or 0+1 configurations for improved disk performance and redundant data protection. Finally, there's an 8x SuperDrive with support for double-layer DVD±R DL/DVD±RW/CD-RW capabilities, and there's also space for another optical unit. iLife 09 is shipped with the computer and other Apple software, such as Aperture, the express versions of Final Cut and Logic, can also be pre-installed at extra cost. The review machine was generously endowed with 6GB RAM.

A Change Of Pace

Those 'slower' CPUs in the Mac Pro are the new Intel 'Nehalem' Xeon processors (Xeon 5500), and Apple says that these and the "next-generation system architecture, can deliver up to twice the performance of the previous generation system." The review machine comes with two of these quad core processors, each with an integrated memory controller with three channels of 1066 MHz DDR3 ECC memory that delivers up to 2.4 times the memory bandwidth while cutting memory latency up to 40 percent over the previous generation – again, cribbed from Apple's spec sheets. Memory is expandable up to 32GB RAM and four Firewire 800 ports are provided (two front, two rear) along with five USB, audio, TosLink digital and two independent GigaBit Ethernet ports – sadly, there are no Firewire 400 ports. I've had some problems with Firewire 800 to 400 conversion when using certain audio interfaces on the similarly 400-less MacBook Pros, but these interfaces worked perfectly on the review Mac Pro. I still mourn Apple's decision to remove Firewire 400 ports from its machines, as it's annoying to have to keep adapters available for any eventuality.

Apple says that it's working hard on the 'green' aspects of its computers, and power consumption is down and recyclability improved with respect to previous Macs. Bluetooth is standard while Airport Extreme wireless is an option – and the Mac Pro has a plethora of other optional choices at the point of sale, including wireless mice and keyboards and Fibre Channel support. For expansion, there are three open full-length PCI Express expansion slots, one PCI Express 2.0 x16 slot, and two PCI Express 2.0 x4 slots.

Smooth And Capable

Comparing the performance of computers in real world situations is notoriously difficult. While one machine many outperform another under the stress of graphics processing, another might shine when piling up the CPU cycles running an audio application. I loaded a complex, plug-in intensive track, recorded using Logic 8, which, on my 2GHz MacBook pro won't even make the effort unless I freeze most of the parts to get it off the starting line. On the Mac Pro, the song nary produced a flicker from all of its eight cores. Final Cut Pro ran as smoothly as it did on the previous generation Mac Pros, and swapping in my Pro Tools card allowed me to carry on work without losing a beat.

In effect, it's a Mac Pro and it works like you'd expect it to. My feeling was that under OSX 10.5 'Leopard' there wasn't much in it performance wise between this new generation of Mac Pros and the previous iteration – despite what Apple claims. However, Snow Leopard should change all that with its better multi processor and multi threading support and hopefully, finally, true 64-bit support. As it stands, it's an extraordinarily capable machine and should become more so in the future. AM

INFORMATION

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THE REVIEWER

STEPHEN BENNETT has been involved in music production for over 25 years. Now based in the wilds of rural Sweden, he runs Chaos Studios and writes books and articles on music technology. He's also a film-maker with several music videos and short films to his credit. www.stephenjamesbennett.co.uk

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GENELEC 6010A

Two-Way Active Loudspeaker

FRANK WELLS looks at the 'first step' in professional monitoring for those not studio-bound.

For applications centered around computers, such as a producer approving mixes from his office or an engineer mixing on a laptop, typical studio monitors are not always practical or effective, though quality playback remains crucial. Genelec has addressed the needs of this class of professional listener with a no-compromise system designed specifically for computer interface and desktop monitoring. The diminutive 6010A loudspeaker follows the form and function of Genelec's 8000 series in a sub-compact format. When married with the companion 5040A subwoofer, the result is a full bandwidth, full fidelity system for stereo and surround monitoring, tailored to the application.

Features

The 6010A loudspeakers stand a bit over 7 ½-inches high with a 4 ¾-inch width and 4 ½-inch depth, weighing in at just over 3lbs. The housing is cast aluminium (available in white, silver, or dark grey) in the now familiar Genelec Minimum Diffraction Enclosure (MDE) with their Directivity Control Waveguide (DCW). The two-way system features a 3-inch woofer and ¾-inch metal dome tweeter with internal bi-amplification rated at 12W for each component. Free field frequency response is rated at 74Hz to 18kHz (+/-2.5dB). A stereo pair is rated to produce 102dB SPL peak output (half space @1m, with music programme).

The 5040A is a down-firing cast aluminium dome subwoofer that stands at just under 10-inches with a 12-inch diameter and weighing just under 14lbs. A 40W internal amp drives a 6 ½-inch woofer. Frequency response is rated at 35Hz to 85Hz (LFE channel to 120Hz) with a 98dB SPL (half space @1m with short term sine waves).

Interface

The 6010As can be used without the 5040A, fed directly from the unbalanced stereo mini-jack output typical to computer outputs and iPods, the preamp outputs of a receiver and so on (input to the 6010As is via RCA jacks). The performance is, as one would expect, light years beyond those of typical computer speakers.

The additional capabilities of the 5040A are what make this combination of speakers a true system, well beyond the obvious LF extension. The sub incorporates a full bass management system for up to 5.1 surround (including LFE input). A stereo mini jack and an RCA pair accommodate front channel input (both can be used simultaneously). All other inputs and outputs utilise RCA jacks save for one additional 1/8" mini jack for the delightful wired volume control supplied with the 5040A – also in a die-cast housing shaped exactly like the 5040A in miniature. Also included are LF phase control in 90 degree steps, and sub level control. Both the 6010As and the 5040A incorporate dip-switch controls for LF control – roll-off on the 5040A; 'bass tilt' shelving filters, and a 200z centered 4dB filter to compensate for desktop reflections in the 6010A.

Set-up of the 6010As and 5040A is a snap, even without Genelec's quick set-up guide. For optimum performance, however, it's hoped the user will at least follow the simple steps outlined to calibrate the sub phase and adjust the various dip-switch settings for a given installation. I both followed the guidelines and rang out the system with a Sencore SP495 Audio Consultant test set. Aside from a minor level tweak to the sub volume when aided by measurement, I got my best performance with the settings in the positions Genelec recommends in the set-up guide – hardly surprising, these guys are pros.

Performance

I've reviewed a number of different Genelec 8000 models since the line's inception, finding markedly consistent performance, the significant differences between models of the analogue only branch of the line being the LF extension. That consistency holds true with the 6010As – clarity, transient performance, imaging, and balance are all excellent. The 5040A is a solid performing subwoofer, perhaps not quite, as expected, in the class of Genelec's superlative 7000 series, but smoothly and seamlessly extending the low end of the 6010As. I listened to reference material on the system over an extended period with no fatigue and great satisfaction, be the source a computer, iPod, or the line out of my Benchmark DAC1.

Conclusion

Described by Genelec as a 'first step' into professional monitoring for fixed installation, home, studio, and portable use, the 6010A/5040A system has the quality necessary to be considered in many applications a logical final step to improve desktop and small environment monitoring in both form and function.

INFORMATION

£ 6010A – GB£190.43 (exc.VAT) per speaker
5040 – GB £381.74 (exc. VAT)

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THE REVIEWER

FRANK WELLS, formerly a radio broadcast and recording studio technician, is the Editor of *Pro Sound News* and the Editorial Director of *Pro Audio Review.*

RYCOTE INVISION

Microphone Suspension Mounts

PAUL MAC finds out what stresses and strains the InVision mic stand will stand. Will it pass the grueling tests that ensue..?

The InVision range of suspension mounts from Rycote is an expanding set based on a small, unassuming piece of hardware called the 'Lyre'. According to Rycote, this is a "patented design… comprising virtually unbreakable dual W-shaped clips of varying sizes." There's a range of models, each designed for a specific list of mic models.

The Lyre mount is a small, flexible piece of 'special' plastic. Two of these are mounted on a short platform that is, in turn, swivel-mounted onto the piece that screws into the mic stand. There's a knob on one side used to tighten and loosen the swivel, and there's a bonus strain-relief clip for the cable. So the product is simplicity itself – very few individual pieces, and no elastic bands.

In the same way you feel compelled to fiddle with faders when standing next to a console, it's difficult to resist pulling the lyre about to see if it will break. It doesn't. For initial testing, I put up two matched, small diaphragm pencil mics on a short stereo bar – one mounted with InVision, and one with a standard snap-in holder. First, and mandatory, is the stand tapping test. In this, the InVision won hands down by a consistent margin of up to 20dB.

Next, and probably more telling, is the microphone body-tapping test. Level was pretty consistent here, but listening to the difference between the snap-in mount and the InVision mount was like comparing a tom-tom to a practice pad. Ringing from the stand was non-existent with the InVision mounts. The other option will come in useful for a great comedy 'boing' effect one day.

On an initial vocal test I was pleasantly surprised to hear that the InVision mount restored a good chunk of high end crispness and detail that was lost (I assume) to the stand and the floor with the other. On instruments it is just as impressive. What's nice is that you can attribute the InVision advantage to a mic that is suddenly achieving its potential, rather than losing precious energy to resonance. I didn't detect any loss of LF response, which you might expect if there was any problem with the basic design, though admittedly I didn't have a pipe organ to hand…

Audible results were very much closer when I brought in a more traditional shock mount (double rings and elastic suspension) for comparison. Both are essentially using sprung systems to de-couple the microphone, so as long as both are well designed that shouldn't be too surprising. However, if you consider cost and ruggedness, the InVision mount wins. A couple of months ago I had a mic stand fall over and one of the rings of the traditional mount snapped in two. I'm sure that wouldn't have happened with a Rycote, and even if it did, it wouldn't have made such a hole in my pocket to replace.

In summary, the InVision range is a practical new take on a necessary microphone accessory. The system works extremely well, is more hardy than traditional systems, and costs less. A very satisfying way to finish.

……

INFORMATION

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THE REVIEWER

PAUL MAC is the Editor of *Audio Media* magazine.

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TRANSFORMERS:
Revenge of the Fallen

RICHARD BUSKIN talks with Supervising Sound Editor Ethan Van der Ryn, Sound Designer Erik Aadahl, and Effects Mixer Greg P. Russell about their work on Michael Bay's much anticipated sequel.

They're back. The robots in disguise last graced the big screen two years ago in a desperate battle over the All-Spark and the fate of planet Earth. This time around, they're duking it out for control of the universe in a host of different environments, including underwater and outer-space.

Optimus Prime, Megatron, Bumblebee, Blackout, and all the favourites are back, with Starscream taking up the role that will be more familiar to long-term Transformers fans as would-be leader of the Decepticons and Megatron botherer, plus an additional baddie-with-bells-on (The Fallen).

Much of the original crew are back, including the lead actors, Director Michael Bay, and numerous audio crew, including Sound Designer and Supervising Sound Editor Erik Aadahl, Co-supervising Sound Editor Ethan Van der Ryn, and Re-Recording Mixer Greg P. Russell.

"From the beginning, Ethan and I spent some time trying to figure out how we could really differentiate this film conceptually from the first one, and how we could take it to new, cool places," says Aadahl. "For instance, the main bad guy in this film is called The Fallen, and he's the original Decepticon, with the ability to transport from one place to another and also control other objects. Well, we tried to think of ways where we could really make his energy something different, with a sound that could convey a huge amount of power, and we stumbled upon the solution accidentally.

"We had sort of a processing chain for the stuff we were designing, and there was a bad edit in some of the source material that we were using to trigger these design plug-ins. It created this whole new bizarre electrical sound, and that accident actually became the basis of The Fallen's sound design. Then there was the Theremin that we used on this film, essentially as a tone generator. Using your hands with the Theremin, you can control pitch and volume very, very fluidly, and so Ethan and I spent some really fun time playing with that and using it to create vocals and motor sounds, while playing it in real time so that it had the character and nuance of a performance.

"The fun thing about the Theremin is that you can dial-in the sensitivity, so you can have a frequency range from, say, 20Hz when your hand is a foot away from the antenna, to 20,000Hz when it's ten feet away. At one point, Ethan was running around the room, we were jumping, and it got really kind of physical. I mean, you get into it, and Ethan was attacking the antenna with a ferocity that made it a visual performance as well as a sound performance."

"We'd never used the Theremin before, and it was sort of a revelation for both of us," adds Van der Ryn. "It tied in with us trying to lift this film to the next level from the last one, in that it helped us twist from the organic into the electronic and back again. The film's about robots that come to life, and while they have this sort of electronic component, they're also organic and physical. Well, the Theremin became this really nice tool for helping us to create those kinds of sounds."

Creating sounds that could quickly morph between the organic and the synthesised was one of the main keys to creating an innovative sonic profile for the new movie. And this was vital for a project that was conceived on far greater scale than its predecessor.

"Erik and Ethan did a fantastic job of providing a wonderful palette of sounds for me to work with," says Greg Russell, who had to deal with many more individual audio effects tracks than the 700 that were delivered to him on Pro Tools for the 2007 movie. "I mean, whereas five or six years ago films would have three or four big set-piece sound sequences, we had two on every reel! Every reel had some enormous, unbelievable sequence that, in the past, would have characterised a movie as a big sound film. And while that was challenging, it was also a lot of fun.

"This time, we were using the new version of the Harrison MPC3-D digital console (in the Kim Novak Theatre at Sony Pictures) with the TFT screens, and right out of the gate it had a lot more flexibility as well as all of the visual feedback from the TFT screens regarding compression, panning, sends, and bussing. On the previous console we didn't get to see that unless we isolated a fader dedicated to a screen, but on the new one every fader has all of this information in front of you, and it's just wonderful.

Oscar-nominated a dozen times since 1990 for the sound on *Black Rain, The Rock, Con Air, The Mask of Zorro, Armageddon, The Patriot, Pearl Harbor, Spider-Man, Spider-Man 2, Memoirs of a Geisha, Apocalypto,* and *Transformers,* Greg Russell pre-dubbed all of the sound effects while Gary Summers pre-dubbed the dialogue, robot vocals, and Steve Jablonsky's music.

"I handled all of the robot efforts and robot vocalisations that aren't English," Russell explains. "Within the new console there is a toys package that has some really clever plug-ins, including four-band compression that works really well, and which Gary used on the robot vocals to help give them a real strong presence without the irritating edge. There's also a great de-esser plug-in, as well as a sonic boom synthesiser rather than the old boom box. It's much more flexible, and I think it will get people listening to the low end.

"There's a shootout featuring Megatron and Optimus Prime that goes into kind of a slow-motion, Matrix-y

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moment, and it has a low-end unlike any other low-end I've felt before, with this huge robot doing a back flip while firing. It's a very cool moment, merging this big, heroic musical theme with some incredible sound effects."

As with the previous movie, the template employed for the new one allocated fourteen 5.1 effects pre-dubs for the cars, helicopters, jets, artillery, and assorted explosions on the human side, while the robots were allocated effects pre-dubs 15 through 23.

"The format was the same," Russell confirms, "with the feet separate from motors, separate from low-to-mid heavy metal, to mid-to-high intermediate metal, to eye sockets and so forth, all the way down to the minute detail of things such as eye blinks. They came up with a good formula on the first movie, and that was one of the things that was really beneficial on this one – we learned a lot from the first movie. Our starting point, both from an editorial perspective and a design perspective, certainly put us in much better shape, because we knew what we needed to do to bring the robots to life. Not only are there triple the number of robots this time around, but their sonic individuality is also far more pronounced, and the design and my approach to mixing both helped with that."

"In terms of scale, we went from a little fly to a robot that's 150-foot tall," adds Erik Aadahl, "and differentiating between all of the characters was really the big design challenge. We spent a lot of time figuring out how to do that. In the case of the fly, his design was actually quite simple, with a wing buzz sound created by wiggling around an electric razor. Then again, the design for the Devastator, who's the biggest robot in the movie, involved lots of heavy mechanics and deep electronic sounds that we created for his motors, while this incredible voice actor named Frank Welker did some really vicious vocals that gave him much more of a personality than if we had just used animal sounds."

"I have to say, there was a lot to be gained by having been in the trenches for the first movie," Russell continues. "And for me, as far as the mixing was concerned, I knew there were things I could do more efficiently and a little more accurately on this one. You know, bringing the robots to life, and making them real and believable, certainly was the big challenge in terms of the effects, along with having clarity and definition when there is so much happening on-screen. With the first movie, I thought we were pretty articulate, in terms of making space when there was so much going on. Well, this particular film is even busier, and we're taking even more license to try to really focus on key moments in a given shot.

"Erik Aadahl really worked with me on what we could turn off, what we could get away with not playing, and I guess that's always been the case; not so much what you do hear, but what you don't hear, and how much space you can create to really have the focus on just a few specific sounds within a shot. So, I guess what we learned from doing the first movie was that we wanted to be cleaner and more precise, and have greater definition on the new one, and make the film play bold and strong without overwhelming the audience.

"This movie probably has twice as much action as in the first one, and that in itself was a bigger challenge because we were constantly going from one big moment to another. At the same time, we tried to do as much trading-off as we could between the music and effects in order to give people a breather, while trying to find ways to twist the sound so that, even within a big battle sequence, we could go from some sort of reality to a more surreal, stylistic, impressionistic realm in order to break it up a little. By diffusing the big action, while you still hear and feel it, the music allows you to rest. Otherwise, if we just played battle after battle at full tilt during each and every moment of the movie, I think it would be way too much for an audience to take.

"For example, there were a couple of sequences where we quite literally pulled back all of the effects, and I almost filtered the high-end out of all of the effects and went into a very dreamlike mode, with the sweeping melody driving the emotion of the sequence. The effects, in this case, were completely secondary; basically felt but not really heard. Then, in a given moment, we'd come out of that with a sharp, reversed kind of sound effect that brings us back to reality and – boom – we're in live-action mode, where you hear everything with all its visceral punch."

As with the 2007 *Transformers*, the sound crew were pretty much given free rein by Director Michael Bay to do what they thought best on the new movie. And in the case of Erik Aadahl and Ethan Van der Ryn, this amounted to commencing by creating on their own, doing whatever they felt worked best, before they'd then begin feeding effects into the cut and getting feedback from Bay once he was able to focus on the audio aspect of his film.

While the initial sound design work commenced in August 2008 and a core crew joined the project in late October, things only went into a higher gear once principal photography wrapped in November, and it wasn't until May of this year that the audio work was completed. Still, Greg Russell is already thinking ahead.

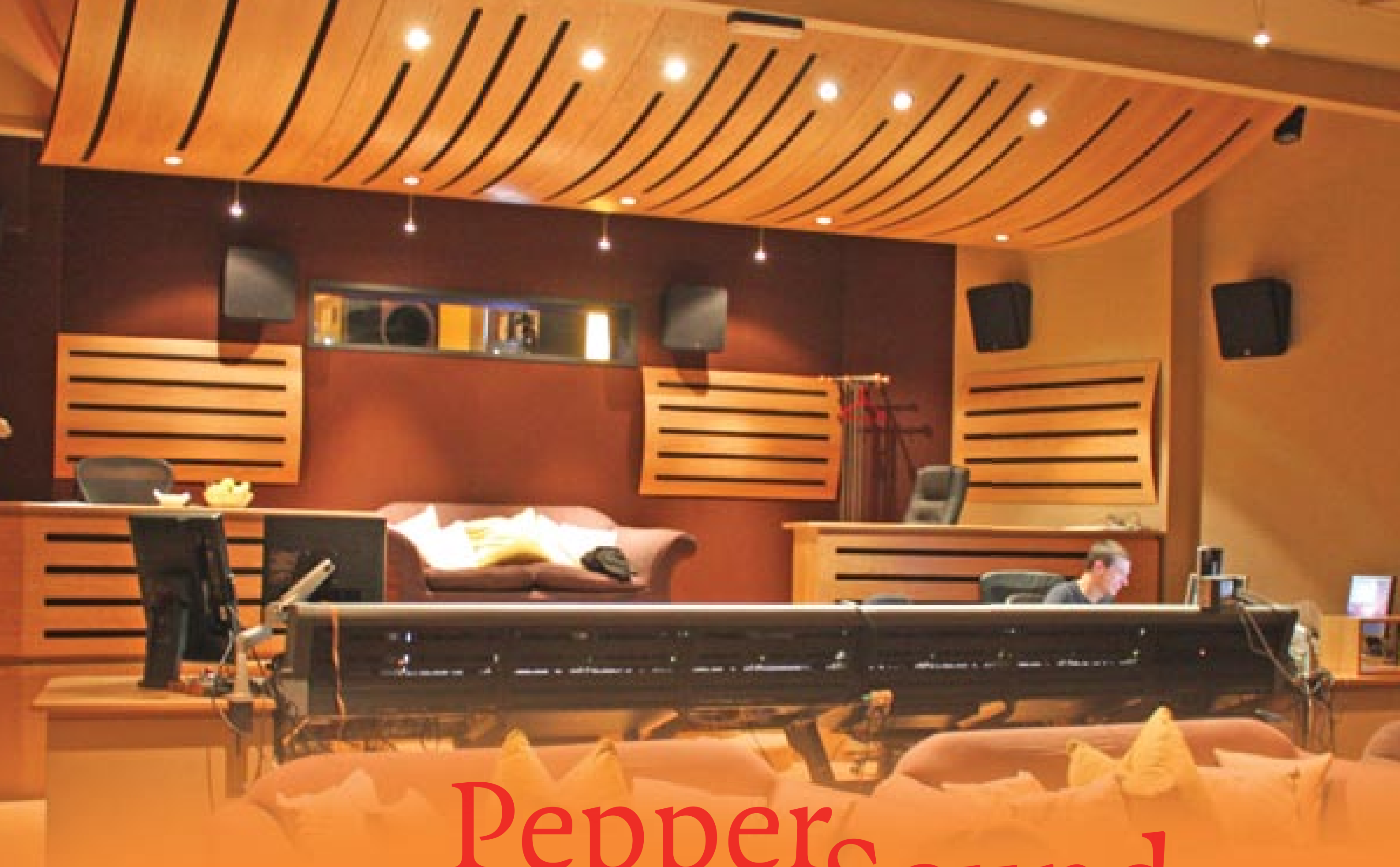
"On this film, I created and finalled a robot stem that was separate from my hard-effects stem, as well as from my background stem and from my Foley stem, " he says. "I even allocated another stem for anything that we added as sweeteners to create the shots that we didn't have when we pre-dubbed. So, in essence I created five stems just for the sound effects, and that kind of flexibility certainly might help down the road when they're doing *Transformers 3* and they want to use specific elements from this movie.

"The fact is, this film was more ambitious in every way than the first one, and while, as a visual spectacle, it will really blow people away, for a sound effects mixer it truly was like being a kid in a candy store. The chemistry between everyone involved on the project meant that we were all on the same page, and the entire crew did an amazing job. Working with Gary Summers was a pleasure, and also terrific were Greg Orloff who did the BG predubs and Jeff Haboush who print-mastered the film. The editorial guys were fantastic, and if I could have them on every movie, I would." AM

Gary Summers, Erik Aadahl, Ethan Van der Ryn, and Greg Russell.

Director – *Michael Bay*

Sound Designer and Supervising Sound Editor – *Erik Aadahl*
Co-Supervising Sound Editor – *Ethan Van der Ryn*
Sound Mixer – *Geoffrey Patterson*
Sound Effects Editor – *John Marquis*
Dialogue Editor – *Ulrika Akander*
Re-Recording Mixer – *Greg P. Russell*
Re-Recording Mixer – *Gary Summers*



Pepper Sound

Soho's New Mix-King?

Wth new audio facilities and an imminent Dolby Premier license, there's a lot going on behind the doors at Pepper Post. KEVIN HILTON explores the changes to this big deal with the boutique feel.

Soho is full of hidden, often forgotten treasures; the remnants of old buildings within modern structures, overlooked pubs and restaurants, churches and shops nestling off-the-beaten-track. The area is now as famous for film and video post-production as it is as a haunt of writers, bohemians, reprobates, and people of the night, so the secret of 25 Noel Street is as much a part of Soho's history as any drinking den or museum of curiosity.

The building now houses Pepper Sound and is striking in a functional way, but not distinctive enough to distinguish it from neighbouring old factories around Berwick and Poland Streets – there's certainly no clue as to what goes on behind the big green front doors. But what the slightly non-descript facade is hiding is the second biggest dubbing theatre in London. Only Studio 1 at De Lane Lea is bigger.

The 8.3m wide, 12.1m long, 4.35m high Theatre 1 has undergone a major refurbishment in the last few months as Pepper Post, a well-established Soho name for digital intermediate, online video editing, and colour grading, has completed its long-held plans to move into audio. New cutting rooms and voice-booths have been built as well, but Theatre 1 is the flagship and has been re-designed to meet Dolby Premier criteria. Confirmation of this status was, at the beginning of June, going through the final formalities, so there was some "will it, won't it?" over whether the theatre would become the first Dolby Premier room in England..

Theatre 1 and the mixing and ADR rooms around it were previously part of Future Post, the facilities division of production financing group Future Films. Pepper Post formed a joint venture with Future to run its audio rooms in what was originally planned as a mutually beneficial arrangement. This business relationship was confirmed in 2007, around the same time Pepper took the big step, culturally if not geographically, to move from Covent Garden to Soho.

The refurbishment of buildings and heavy investment in HD and DI data facilities, including what is claimed to be the largest DI grading theatre in London, caused an overrun on Pepper's budget. This, and changes in the UK tax credit legislation and subsequent contraction of the British film sector, caused a cash flow problem. Under this pressure Pepper Post Production went through an administration process during July 2008, and was re-launched soon afterwards as Pepper Post Limited, with fresh finance from a group led by equity investor Partner Capital.

Shane Warden became joint Managing Director following a management buy-out of the company in 2003 and is now sole MD, as well as carrying on his trade as an Online Editor. After the re-financing deal Pepper faced the decision of whether to drop the relationship with Future Post or buy the operation outright. The second option was taken, with Future Films maintaining a "minor investment" in Pepper.

United We Stand

The London post market has become polarised in recent years, with big facilities, many of them owned by large, well financed groups, at the top end of the scale and smaller, specialised houses at the other end. Mid-sized companies have fared badly and many famous names have gone to the wall. Warden says his aim was to offer sound and vision services for feature films and high-end television drama, which would put Pepper into the big, one-stop shop category. But with video editing, grading, and DI within the old St James's and Soho Club building on Greek Street and audio at Noel

►

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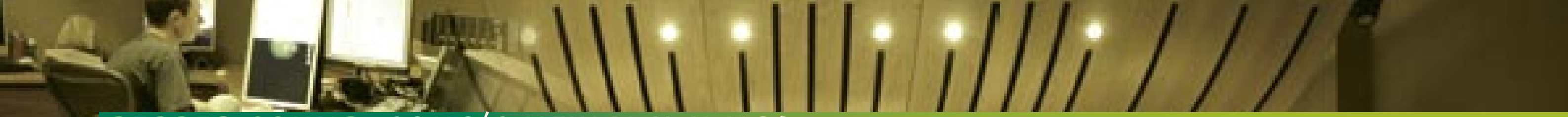

Street, Warden feels there is a boutique feel to the businesses.

Future Films established Future Post so it could offer a complete package of financing and post-production to British filmmakers. While it did work on many independent films there was an inherent flaw in the plan, as producers and directors do not always take kindly to being told what facilities they should use, even if the financial backing for their production is part of the deal.

Under the original plan of taking over the management of Future Post, Pepper hoped to widen the facility's user base; now it owns the operation completely there is more scope and freedom to do that. "Future Post had got left behind and lost ground to key competitors," Warden comments. "Our role has been to strip everything back to its core and enhance the qualities that are there, bringing the facility up to its full potential."

Warden feels Pepper Sound, and Theatre 1 in particular, is in a position to be among the best audio facilities in London. "We're optimising the facility for three markets," he explains, "drama, feature films, and pre-mixes." These areas were already catered for, but the refurbishment of Theatre 1 and more resources for other existing suites is extending their functionality and appeal.

New Talent

As Pepper had no previous experience in audio, Warden knew he had to bring in an experienced person to run the new division and in November 2008 appointed Dave Turner Head of Sound. Turner spent 18 years at Videosonics, and then had a brief spell at Molinare before taking up the post. He says he saw the potential in the facility but knew that work had to be done to put it in a position to challenge both the sound departments of one-stop shops and the specialised sound houses.

Turner sees all the rooms, both established and new, as playing a part in Pepper's bid to become a contender in the audio post market, but knows that Theatre 1 is the big gun in the armoury. "It's the jewel in the crown," he says. But before it could be exploited, adjustments to the room's acoustics were necessary, particularly as major feature films were a target and Dolby Premier status would help bring in that business.

"To qualify for Dolby Premier we knew some acoustic changes had to be made, including the reverberation times," Turner explains. There was also the more practical matter of re-designing the layout of the room, both to allow sound and music editors to work on material while mixing was in progress, and to appeal to directors and producers. "We wanted to accommodate more people in the room and also change the decor, which looked a bit early '90s," says Warden.

The Premiership

Munro Acoustics was called in to handle the acoustic refurbishment. The project was headed by Acoustician Chris Walls, with fine-tuning by Phil Pyatt. Walls says the brief was simple – to get Dolby Premier certification. He adds that Theatre 1's specific problems were standing waves at low frequencies, the reverb times being too low on the mid and high frequencies, and too high on the HF. "We've introduced a lot of tuned absorption to bring down the low end reverb time and put in diffusion surfaces to keep mid and low frequencies in the room," he comments.

Walls acknowledges that refurbishing an existing room can be more difficult than designing one from scratch, calling it a "different kind of challenge". But he says what was already in Theatre 1 was 'workable', largely because the geometry of the space was "not too bad". The main difference between Dolby Premier and Dolby's other standards for film rooms is the frequency response at the mixing console, which cannot be more than +/-2dB.

"There's quite a bit of science behind the various surfaces," Walls says, "because the aim was to get an even sound across the whole of the console. The furnishings were a key part of the brief because there are the dedicated workstations for music editors at the back of the room, and we also wanted to ensure that everyone could see and hear what they need to see and hear, with good sightlines to each other."

The change in decor, which matches the colour scheme of Pepper's Greek Street premises, includes a new carpet, which also helps with absorption. For greater sound isolation from the corridor outside there is now a double-door as the entrance to Theatre 1.

The loudspeaker system is a new two-way JBL rig, with three sub-basses. The number of subs was increased from two, Walls explains, to reduce the load on the existing cabinets from 90 percent to 70 percent. The front loudspeakers are hidden behind a new screen, which is wider to accommodate pictures with a 2.35.1 Cinemascope-style aspect ratio. The room's existing AMS Neve DFC Gemini console has been upgraded with new software, and 2k digital picture playback is through a Merging V Cube HD system and a Barco DP90 projector, mirroring what is used in Pepper's DI theatre.

During Dolby's involvement, the company's James Seddon, Senior Sound Consultant, used phrases such as "complete transformation", and "very smooth response", and not forgetting "A huge improvement and completely different to how it sounded before."

Room To Work

Theatre 1 takes most of the focus but that's to be expected, if only because of its scale. The other rooms in the Noel Street building are smaller but are playing their part in the new direction of the facility. Studio 3 was used mainly for Dolby trailers, pre-mixing, and lower end projects; but now has moved into high profile television drama. The breakthrough production was *Law & Order UK*, the well-received Anglicised version of the long-running, didactic American series.

Law & Order UK is an example of the kind of project Pepper wants to bring in, as both the vision and sound were post-produced by the company, split between Greek Street and Noel Street. The soundtracks for *Law & Order UK* were mixed by Dubbing Mixer Howard Bargroff, a recent recruit for Pepper whose credits include Terry Pratchett's *The Colour of Magic* and the re-make of *Sleuth*.

Studio 3 now features an HD projector and a second Pro Tools system, with the AMS Libra Post console augmented by a Digidesign D Control. Turner says Pepper Sound was the first to install version 8 of Pro Tools, which has increased the capability of the facility's workflow. This is further enhanced by having direct links between the audio and vision departments; a dark fibre connection allows material to be passed both ways between the two premises.

Warden says this and other innovations are making operations more efficient. "We can see on the big screen if something in ADR doesn't work," he says. Turner adds that the fibre circuit allows mixes to be bounced down live to Greek Street, while new versions of the visuals can be sent direct to Noel Street to ensure that the audio matches.

In addition to its regular work, the dedicated ADR room is being used for a lot of remote sessions, with UK-based actors re-voicing sequences in American episodic dramas over ISDN connections to Los Angeles. New facilities have been created as well, with old storage areas turned into cutting rooms and the small-scale Studio 4, which is aimed at voice-over work.

Shane Warden says Pepper, both Sound and Vision, is shaping up to fulfill the plan of a facility that can work on anything and everything at a boutique level. But with either building the casual observer would be hard pressed to say what was going on behind the doors.

……

INFORMATION

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Conch Competition!

Nominate and Win!

...in the Audio Media Unsung Hero Award

With nominations already underway in the annual Conch Awards for the UK Post production industry, it's time to announce the prize fund on offer in the Unsung Hero nominations promotion. If you nominate an unsung hero (and if you have already nominated), you will be entered into a prize draw. See the information opposite for everything you need to get involved.

The first name out of the hat wins all of this…

Genelec 6010A (pair)

The new Genelec 6010A is an extremely compact two-way active loudspeaker designed for computer sound systems and other close proximity listening applications. Its small size, amazing sound quality, and rugged construction make the 6010A an ideal sound system for the travelling professional user and a constant source of listening enjoyment. The 6010A excels in applications where space is at a premium, taking full advantage of the innovations and unconventional design features created by Genelec.

Designed by Genelec's R&D team in co-operation with internationally acclaimed Finnish designer Harri Koskinen, the active 6010A contains its own power amplifiers, active crossover filters, and automatic protection circuitry. RCA line level audio connectors provide direct connection to a computer sound card, portable MP3 player, or preamplifier.

The cast-aluminium Minimum Diffraction Enclosure (MDE) and advanced Directivity Control Waveguide (DCW) technologies are carefully matched with advanced amplifier and electronics circuitry and the latest drivers. Bass response extends down to 73Hz (-3dB), while distortion is exceptionally low due to a uniquely new rear reflex port design.

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This prize has been generously supplied by Source Distribution, UK distributors for Genelec monitors.

www.genelec.com

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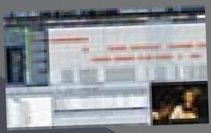
Steinberg Nuendo 4



Delivering a next-generation audio production environment for audio post, studio production, and live recording, Nuendo 4 empowers audio professionals by elevating creativity and productivity to new heights. Technologically advanced yet extraordinarily intuitive and fully customisable, Nuendo 4 offers streamlined, precision tools that save time and boost creativity for audio professionals in today's media, recording, and film industries. Nuendo 4 provides scaleable, cross-platform systems that integrate easily and fully with premiere components by industry-leading plug-in and hardware manufacturers. Steinberg technologies provide power, flexibility and speed, accelerating recording, mixing, editing, and sound design workflows to an unprecedented level.

Nuendo 4 offers a state-of-the-art automation system, which combines with new recording functionality and Track Preset management features to speed up audio production workflows. A next-generation VST3 effect plug-in suite, the innovative MediaBay database, new editing commands, and the Track Quick Controls raise production efficiency and quality to new heights. With the introduction of the 4.2 update, Steinberg refreshed Nuendo by introducing extensive support for Yamaha KS and Yamaha Motif XS series, as well as for the Steinberg MR816 CSX/X Advanced Integration DSP Studio and the CC121 Advanced Integration Controller. Nuendo 4.2 is also a major maintenance release for Nuendo 4, and includes several workflow enhancements and improvements.

This prize has been generously supplied by Steinberg.

www.steinberg.net

SE Electronics T2

SE Electronics, unrelenting in its delivery of new quality products to the mic market, has produced the T2 as a replacement for the successful Titan microphone.

This mic has all the tonal assets of the acclaimed Titan mic, with unparalleled HF response on fast transients such as percussion/drums, but with an all new, rugged and functional chassis, and a host of extra features including four polar patterns, two bass cuts, a 10 and 20dB pad, and the unique new sE 'open face' shock mount.

Why Titanium? The T2 has a Titanium capsule instead of the more usual gold sputtered type. Titanium has special properties that make it especially well suited to making high quality microphone diaphragms, and is used in the world famous Neumann M150 diaphragm because of this. Like gold it does not tarnish, but it is a lighter metal than gold and stiffer, therefore it moves faster and gives a superior transient response. A better transient response means clear high frequencies with less distortion and a tighter low frequency response.

The Titan is s superb vocal mic which, in its new format, is now especially well suited for super high quality instrument recording. Combining the best of its predecessor, the Titan, and the new studio standard the sE4400a, this mic is one of the flagship models in the sE range, and a must have for any serious studio.

This prize has been generously donated by SE Electronics and Sonic distribution.

www.sonic-distribution.com

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The Conch Awards
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Venue: Kings Place, London

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A selection of last year's winners.

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About Conch

The UK Screen Conch Awards is an annual awards ceremony (and party), held in London, intended to celebrate the expertise and achievements of the UK audio post production community. Now in its fourth year, the awards have been widely acclaimed and gather more support year on year. In fact, this year the ceremony is moving to a bigger, even posher (if that's possible) venue to accommodate the collective movers and shakers of the UK post sector.

Audio Media is proud to be a Media sponsor of the Conch Awards.

Ⓦ **www.ukscreenassociation.co.uk**

Conch Awards Nominations and Voting

By the time you read this, the nominations phase for the main Conch awards categories finishes on June 12, 2009. The Unsung Hero category is maintained until the deadline of the voting phase in the main categories (July 13, 2009).

Please be sure to get your votes in – everyone is welcome. Simply visit the UK Screen website (ukscreenassociation.co.uk) or go directly to www.audiomedia.com/conch. The voting phase starts on June 22.

How To Nominate

There are two ways to get involved in this year's Unsung Hero Award.

Either…

1) Go to www.audiomedia.com/conch and choose to vote in the Unsung Hero awards.

2) Send an e-mail to conch@audiomedia.com with your contact details, your nomination, and (if possible) your reason for nominating that person.

As the final Unsung Hero Award nominations are decided by popular vote, the deadline for entries is July 13, 2009 (the same as the deadline for the main Conch voting stage).

Rules

To be eligible for the prize draw, you must nominate in the Conch 2008 Unsung Hero category. The nominations phase for this category has already started and continues until July 13, 2009.

2) Employees of NewBay Media companies, both freelance and permanent, and their families, are not eligible for entry to the prize draw.

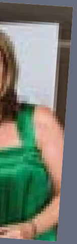
3) A winner will be selected at random from all who have nominated in the Unsung Hero category of the 2009 Conch Awards.

4) The winner will be notified by August 1, 2009.

5) In the event that the prizes shown are discontinued or updated by the closing date, those prizes will be replaced with an equivalent product, or the updated version.

Smudger, Unsung Hero in 2008.

The Unsung Heroes so far...
2006: Peter Burgis and Andi Derrick
(Foley Artists)
2007: Gerry Teague
(formerly) Head Engineer, De Lane Lea
2008: Smudger
(formerly) Videosonics
2009: ?



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Summer Hits 2009

Mid Year Gear Picks

Summer is finally beaming down on us and while that in itself is a good enough reason to celebrate, we thought we'd sprinkle a little extra sunshine over the proceedings. Here, in all their dazzling glory, are the pick of the bunch from this year's still sizzling releases – all set to make this summer the brightest yet.

Adam Audio reached its tenth anniversary this year, and over the popping of champagne corks the distinctive sound of its new SX-Series of studio monitors could be heard. The range evolves upon the S-Series, with a total overhaul of all transducers, drivers, and electronics. Among the improvements is a redesign of the proprietary Accelerating Ribbon Technology (ART) tweeters, now christened X-ART (eXtended frequency response), featuring 4dB higher efficiency, 3dB higher maximum sound pressure level, and an increase in frequency response up to 50kHz.

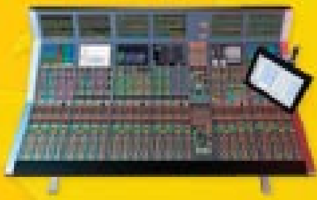
www.adam-audio.de

The XB-14 mixing desk from **Allen & Heath** bravely dares to go where no broadcast mixer has gone before, providing a compact broadcast radio desk for under GB£1,000. The custom designed console swiftly shrugs off any insinuations that it is a slightly adapted Zed-series model, and instead provides a unique and genuine radio friendly solution. The list of features includes four mono mic inputs, two Telco channel inputs, and four stereo faders that offer control over a selection of balanced, unbalanced, and USB return inputs.

www.allen-heath.co.uk

Audioease's Speakerphone 2 is a welcome evolution of the very successful Speakerphone, and sports a cleaner look plus many new features. Among these is a microphone simulation module that hosts a plethora of models ranging from Royers to toy mics, plus Coverup, a module that emulates the effect of closed spaces on sounds. The new package comprises 400 speaker impulse responses, 23 microphones, 106 'covers', 53 Altiverb rooms and outdoor spaces, 5GB of ambiences and sound FX, plus 12 DSP modules.

www.audioease.com



Calrec's Apollo broadcast console offers an enormous number of processing paths (1,020 to be precise) as well as 128 program busses, 96 IFB/Track outputs, and 48 auxiliaries. The paths are fed by the company's Hydra2 networking technology, a 8192/8192 crosspoint router enabling all I/O to be situated remotely from the console. The control surface takes advantage of OLED displays alongside touch screens for setting up routings and displaying EQ curves etc, which makes use of touch membranes over the OLEDs.

www.calrec.com

Cubase 5 is the latest incarnation of **Steinberg**'s advanced music production system. If there's a theme, it's a move beyond the strict tape-based metaphor to a looser approach to audio working. And our reviewer loved it (*Audio Media* March 2009).

CUBASE 5
CUBASE 5

This version packs in plenty of new features including Groove Agent, a sixteen pad virtual MPC sample player and the PitchCorrect plug-in, a real time effect with programmable speed and tolerance, plus pitch shifting, scale fitting, and format alteration.

www.steinberg.net

DiGiCo's SD7 was built for the future with bountiful processing power provided by the onboard FPGA Stealth processing and Tiger SHARC chips. Recently the console's potential has been unleashed with the introduction of the Mach 2 software upgrade. DiGiCo's Marketing Director, David Webster, compares the improvement to a car manufacturer offering you an upgrade from a 350bhp engine to a 580bhp engine a year later, completely free of charge. He also believes the console is capable of a breakneck 1,000bhp in years to come. Get set for lift-off.

www.digico.org

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The Producer Com from **DirectOut** is a very clever piece of kit that uses MADI streams to move around control data and audio. It packs in a massive amount of features, so take a deep breath before we plough on with the list… Just some of them are two MADI inputs, two MADI outputs, microphone input with phantom power, two adjustable headphone outputs, two analogue line-outs with separate volume control, two AES I/Os, ADAT I/O, wordclock I/O, video reference input, and standard analogue telephone input via front phone jacks. Phew. Producer Com is slated for imminent release.

www.directout.eu

The MC Transport from **Euphonix** places a convenient, weighted, and optically encoded jog wheel at its centre, providing ultra-high resolution navigation of timelines. Seeing it at Musikmesse was the most excited we've seen the Editor since Howard Jones' live album came out (note: VERY excited). Adorning the centre-piece are a shuttle ring, transport/navigation controls, a numeric keypad, and six soft keys. The latter provides quick access to application functions and, when combined with the transport and navigation controls, provide a further 29 programmable soft keys via the function key.

www.euphonix.com

Bursting onto the already over-populated and fiercely competitive arena of studio project monitors comes **Focal** with its CMS range, comprising the CMS 65 and CMS 50 models. These additions are far from superfluous however, with tight, accurate bass reproduction, and a midrange to die for. They are clear, crisp, and well defined with pristine stereo imaging, complemented superbly by bright, clean highs that don't suffer from harsh edges or excessive softening. The only fatigue you're likely to encounter with these is through lack of coffee or stimulants.

www.focalprofessional.com

It's always pleasing when a company responds to the needs of its users, and that's exactly what **Genelec** has done with its 1038CF tri-amplified active monitoring system. The unit is based on the 1038B model, a hugely popular choice for mid-sized environments but just a tad too bulky for smaller spaces. The 1038CF addresses the need from market feedback and customer requests for a compact package that still packs the same impressive mid and high performance of its bigger brother.

www.genelec.com

Soon set to take the live performance, broadcast, and multi-track recording markets by storm is **JoeCo**'s BlackBox recorder – "designed to specifically capture the performance of a live event," says company owner Joe Bull. The 1U, 24-track recorder boasts simplicity of operation, low cost media, no moving parts (apart from the drive), and 'virtual sound check.' This last feature is the device's *coup de grace,* enabling simple, seamless, reliable recording of on-stage acoustics, thereby negating the need for future sound-checks from temperamental musicians. Sound Technology has recently been confirmed as the UK distributor.

www.joeco.co.uk

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LAWO

Lawo launched its way into the pure software domain this year with the release of a twelve-strong bundle of plug-ins that bring the audio quality from the renowned mc² mixing consoles directly to your DAW. Lawo's Plug-in Collection comprises automatic gain control, compressor, compressor with side chain filter, delay, expander, gate, gate with side chain filter, graphic equaliser, hyperpanning, image X, limiter, and parametric equaliser. The collection condenses twenty years' worth of DSP programming experience into one hugely multi-faceted tool.

www.lawo.de

Radial's Phazer, put simply, is a little box that can make a big difference to your sound; acting as an effect, an EQ, and a correction tool, amongst many other uses. The heavy duty device is built for stage and studio applications, and utilises jack and XLR line level I/O, a phase adjustment section with Shift knob, bypass button, phase flip (180 degree), low pass filter section with bypass, cut-off frequency knob, range switch, plus ground lift and power switch.

www.radialeng.com

The sE RNR1 is the first in a series of very exciting collaborations between **sE Electronics** and industry leviathan Rupert Neve. The former has designed the transduction and transformers from scratch, while Neve supplies the circuits and transformer architecture. The RNR1 is a solid-state active ribbon microphone with a tight bi-directional polar pattern, and a frequency response of 20hz to 25kHz. It also claims a couple of 'firsts' – the first mic electronics by Rupert Neve, and the world's first HF ribbon mic.

www.seelectronics.com

Sennheiser's Evolution G3 series is, as the name implies, the third generation of its wireless system series with the major revelation being a switching bandwidth of 42MHz. This improvement proffers a gigantic 1,680 frequencies to the user. The frequency response has also been extended down to 25Hz for those bass junkies, while Soundcheck mode can now be operated during the show. The series comprises the 100, 300, and 500 G3 series, the all-new 300 IEM G3 wireless monitoring system, plus the ENG sets.

www.sennheiser.com

The newest addition to the **Soundcraft** family is the Si2 digital live sound console that follows in its bigger brother's footsteps, the Si3, while very much maintaining its own compact characteristics. The Si2 features 48 mic inputs mapped on 24 faders, four dedicated stereo line channels, four dedicated FX returns from the four stereo Lexicon processors, eight balanced insert sends, and eight balanced insert returns. Also included are four-band fully parametric EQs with high and low cut filters, plus on-board dynamics.

www.soundcraft.com

Tascam's DR-100 solid state portable recorder features four built-in condenser microphones (two cardioid and two omni-directional) with analogue limiting and filtering. If that isn't enough, two XLR microphone inputs with phantom power provide users with the opportunity to inject their own sound preferences into the rugged little unit. Other convenient features include a rechargeable Lithium-ion battery (though the unit can be powered using AA batteries or an AC adapter) plus a wireless remote control for remotely starting the recording.

www.tascam.com

Ultrasone's Edition 8 headphones put some very clever technological achievements and sophisticated materials around your cranium, the most notable being its S-Logic Natural Surround Sound. Our ears function as a unit, with the pinna (outer ear) contributing to our perception of sound in space. With this, and the fact that almost all audio is mixed with standard monitor positions in mind, Ultrasone's S-Logic technology angles the diaphragms so that the headphone experience is a more natural one. Clever stuff.

www.edition-headphones.com

Unity Audio, quality purveyors of hardware and software since 1995, has designed its own range of studio monitors. The Rock is the first out of the gates, with a bold tag that describes it as "a brutally honest tool on which you can base the most critical decisions." Features include a folded ribbon tweeter with neodymium magnet, a 180mm woofer with a 0.2mm aluminum foil, and a 100-watt discrete bi-polar low feedback amplifier designed by Esoteric Audio Research Designer Tim De Paravicini.

www.unity-audio.com

The **Zoom** H4N hand-held recorder is an almost unmatched universal solution to portable recording, and provides a very impressive four-tracks' worth of recording. In fact, the company claims that it is the only hand-held recorder to offer simultaneous recording on four channels, which can be achieved by using external mics along with the onboard X/Y stereo condenser mics. The inbuilt four-track mixer provides level and pan controls, while the MS matrix and mono combiner setting for the inputs offer additional convenience.

www.zoom.co.jp

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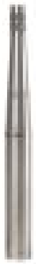
Thermionic Culture *Fat Bustard*

14 Channel valve summing mixer with master section EQ, Stereo Width & Attitude Distortion.

"I adore this box already after just 3 weeks tracking with it, I can't wait to bring it to the mix"

Mike Crossey – Engineer/Producer currently using the Fat Bustard on the new Enemy Album.



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Little Labs

Little Labs *Multi Z PIP*

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Soundtoys *Native FX Bundle*

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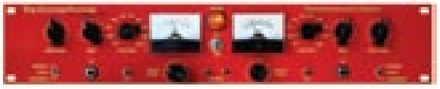

Thermionic Culture

Culture Vulture Limited Edition Anniversary Model

To celebrate Thermionic Cultures 11th year in business a limited edition model of the Culture Vulture with high gain Mullard and Philips valves and a new 10 position distortion type selector has been design. Limited production run of 80 units only.

Chandler *TG Channel MKII*

A recreation of several classic EMI circuits, combines a TG2 pre amp with a redesigned EQ from the EMI TG12410 mastering console, which is the mastering counterpart to the original 'Beatles desks'. The TG Channel MKII version has been remade using original information provided by Abbey Road to ensure extreme authenticity.

BURL *B2 Bomber*

The B2 Bomber ADC from BURL Audio is the most significant piece of audio gear in your studio, and you don't even own it yet. You've spent a fortune on great mics, great mic pres, and a kick ass DAW, but unfortunately you are missing one key component; an ADC with an audio path worthy of your recordings.

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Audio Ease Speakerphone 2

JERRY IBBOTSON has his prejudices of the Speakerphone as 'just a plug-in' cast aside, and decides that actually, it's something rather special indeed…

THE REVIEWER

JERRY IBBOTSON runs Media Mill, a York-based audio production company started in 2000 that specialises in sound for video games. Prior to this, Jerry was a BBC journalist for ten years, ending his spell with the Beeb as a reporter and newsreader at Radio One Newsbeat.

I've resigned myself to the fact that I will probably never sit in the first class section of a Jumbo Jet, never taste the nibbles on offer (presuming there are nibbles), and sip champagne (there has to be bubbly, surely?). But hey ho, I can console myself: tear open a bag of Tesco Value peanuts, drink some out of date Coke from a paper cup, and for that true sense of in-flight realism, filter some music through one of the presets on Speakerphone 2. Yes, that's right, I've just discovered the '747 First Class Cabin' setting on Audio Ease's excellent plug-in.

The original Speakerphone came on the market last year, and I remember thinking how useful it would be in various sound design projects: being able to accurately alter sounds to match a wide range of real world loudspeakers; from telephones to PA systems. I could find a stack of uses for it, from audio for game cut scenes to character voices. But to be honest, I was a little put off by the price and decided not to bother, relying instead on filtering, reverb, and distortion done the old way.

But let me be up front: having tried the new improved Speakerphone 2, I was wrong. Oh yes. The software gives you instant access to a mind-boggling range of speaker and microphone simulations, and by combining these and tweaking the settings, you can produce just about any kind of effect you want.

The package runs as a VST plug-in on both PC and Mac, and is a two-disc installation. First you load a stack of samples and then the program itself. The User Guide is well written and provides detailed descriptions of what the software can do, but it did make me chuckle; whoever wrote it seems to assume you will by default be using Pro Tools and nothing else. Dear Mr Audio Ease: believe it or not, there are other DAWs out there. I ran Speakerphone 2 very well in both Nuendo 4 and Audition 3.0, thank you very much.

At the core of the program is a library of Impulse Responses; recordings of actual speakers. I'm used to dealing with I.R.s when related to reverbs, but Speakerphone uses them to match a wide range of characteristics, including frequency response. But you really don't need to worry about the technical stuff going on behind the scenes, because there's a beautifully simple interface. It's so simple, in fact, that you can suss things out without once having to look at the book.

At the top of the screen are the selections for Speaker, and in the centre of this row you see a photo of the actual speaker you've selected. They're grouped together into six categories including telephones, radios, and megaphones. In the telephone section alone, there are twenty odd variants, ranging from antique models to modern cordless jobbies.

There's also a Wet/Dry mix slider, which can be automated in your DAW, and a Pre/Post button that lets you choose where in the signal path you put the convolution module. Oh, and there are also controls for Input/Output Levels and a Limiter.

Spaces And Places

I loaded up some voice recordings I'd recently made, and ran them through different speaker selections at random. The sheer choice on offer was amazing, each one backed up with a picture of the real thing. The accuracy was excellent, at least for the devices I was familiar with, like walkie talkies and radios. As for the speakers I was less familiar with, like the antique telephones; well, they sounded exactly like I would expect them to. Think of James Herriot's housekeeper saying, "Hello, Darrowby 252", or a secret agent whispering down the line. Utterly believable and only one mouse click away.

But that really is just the beginning. Because you can also simulate different microphones, place your sound in a given environment, and then muffle the sound by covering it up. Let's look at the microphones first. There's another amazing selection on offer, from studio types right through to tiny plastic toy ones. Again, they all have a photo to show you what you are dealing with, so if you want to simulate a supermarket announcement you can select the model that matches. There's also a dial to alter the level of degradation, making the microphone sound more or less crackly. If you wanted to create a perfect pilot's headset sound, for example, you could pick a microphone then select a matching speaker output and you'll have the perfect sound.

This is where Speakerphone 2 starts to get really interesting: building up a chain of different effects. After adding together your pilot's headset mic and small cabin speaker, you might want to go one step further and place that sound in the environment of the airliner. Easy peasy: there's another section, called Room, that lets you do just that. The 747 First Class Cabin can be found in there along with a stack of other choices of environment. So now you've taken your source audio, put it through a crummy microphone, pumped it out of a tiny speaker, and then placed that speaker in an airliner. And you can tweak each stage of that process until you get the result you want.

I've been wittering on about airliners because I put this particular effect to good use, doing a quick project for a firm that produces interactive play areas for children with learning difficulties. They wanted a selection of sound effects relating to transport, and I decided that one of them should be the sound of a pilot addressing his passengers prior to take off. The 'old' way would

▸

► have been a mix of filtering, reverb, and maybe some distortion, and would have taken a while to get just right. Using Speakerphone 2 took a few seconds, and resulted in something that just felt more, well, *real*.

I also needed to take some pre-recorded voice material and make it sound like the public address tannoy at an air show. This time it was a mixture of megaphone speaker and sound 'placement' in an outside venue. I tend to find outdoor reverbs a bit of a pain but again, it was done in an instant and sounded spot on.

Alongside Microphone and Room is a section called Cover. This lets you put your sound inside something, while you remain outside. Some of the I.R.s on offer are truly bizarre, such as a bread maker (answers on a postcard please?). Others are more commonplace, such as car boot. They all provide occlusion of the sound you're working with, and once again can work well in conjunction with other effects.

Those are the main areas covered, but there's still so much more to Speakerphone2; like Distortion, which can be placed before or after the sound reaches the speaker you've selected. Then there's a Telecom section, which reproduces all the 'bad' sounds you may hear during a phone call. There are presets for different types of phones and connections, as well as a way to change the sample rate of the phone transmission and the quality of the connection. You can also use the latter to produce robot voice effects.

The Crush effect is quite handy – adding extra distortion to your sound; and the Tuning function is pretty damn cool too. This simulates the effect of turning the tuning knob on a radio. You can even choose between FM and AM. Easier than dragging an old wireless into the studio and tuning the dial while hoping you don't hit TalkSport.

Bonus Samples

I can't cover everything that Speakerphone 2 has to offer because there isn't the space, but I have to mention the Sample Bay. This sits at the bottom of the screen and adds background noise to the sound you're working with: stuff like traffic, static on the line, or phone beeps. There are even samples of a phone being dialled or slammed down angrily, and these can be placed before or after your main audio. Several gigs worth of samples are provided, and you can drag them from the Sample Bay to the tracks in your DAW.

There's also a whole section within Speakerphone 2 that simulates guitar amps and speakers. This takes the program from being a tool for sound designers and effects merchants to something for musicians too. In fact, the whole package could be used by musicians as much as by anyone else. And talking of music, there's even a function to mimic a wobbly vinyl record (go ask your dad). And you can even specify whether it's warped horizontally or vertically, or both.

There are functions I haven't covered but the core thing with Speakerphone 2 – the thing that makes is so special – is how even the simplest tools work so well together. Take a piece of music. Put it through a car speaker. Then place the speaker actually inside a car; there are several to choose from. Still not enough? Try adding some distortion to simulate the car's speakers having had a hard life. Then, if you want to cut between inside the car and outside, add some Cover. It's a joy to use and I lost count of the number of times I started grinning at the 'coolness' of the resulting sound. I can remember years ago, when working on rally games for the PlayStation 2, spending ages trying to get the right kind of sound for the co driver voice, coming at you from his helmet microphone. With Speakerphone 2, it would have taken a fraction of the time and sounded way, way better. Finding the right overall sound and then batch processing it across a few thousand samples would have been a doddle.

Conclusion

When you think of how much sound we hear, in our everyday lives, that's piped through some kind of speaker, you can see why something like Speakerphone 2 exists. But it's really not just about mimicking loudhailers or mobile phones. It's about giving you access to a whole layer of creativity. I only chose to produce the airline pilot voice because I knew this software would do it easily and brilliantly. The old fashioned way would have been too time-consuming for what was meant to be a simple, quick project. This actually encouraged me to be more creative and it produced something that sounded brilliant. When I first judged Speakerphone (Mk1) to be too expensive I only saw it as a single function plug-in. It's not; it's a superb bit of software in its own right.

· ·

INFORMATION

£ **Speakerphone GB£368.58**

Ⓐ **Audio Ease, Lagenoord 26, 3513 GW Utrecht,**
The Netherlands
Ⓣ **+31 30 24 33 606**
Ⓦ **www.audioease.com**

Ⓐ **UK Distributor: Unity Audio Ltd., The Elms Barn,**
Baythorne End, Halstead, Essex, CO9 4AB
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Ⓦ **www.unity-audio.co.uk**

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PrismSound

Tascam
DR-07 & DR-100

What does Tascam have to offer a marketplace that's already flooded with portable recorders?, wonders JERRY IBBOTSON.

It could hardly have escaped your attention that the global motor industry is in a bit of a state at the moment, and yet this is a time when there's never been more choice for car buyers, when new vehicles are better made than ever and bristle with new technology. It seems that for potential buyers, with so much to choose from, any new car has to offer something truly special to part them from their very hard earned cash.

And it's the same story in the digital recorder market place. A few years ago there wasn't that much to choose from. A small mortgage would get you the likes of a Sound Devices, Portadrive, or Nagra, but at the lower end of the market you'd be looking at something like a Marantz 670. And when it came to truly pocket sized machines, the only one I can remember, before say 2006, was the Edirol R1.

Now though, the world is awash with portable recorders: offerings from Olympus, Marantz, Zoom, Edirol… deep breath… Yamaha, Korg, and Sony have all graced the pages of this magazine in the last year or so. Browsing dealer websites like Dolphin Music's reveals dozens of the little darlings for sale at every conceivable price point.

> "One useful feature on the front is a slider to select which input you want: either of the two built in mics, the XLR, or the mini-jack line in… The backlight comes on as soon as you touch any of the controls, which is a useful touch."

It is into this maelstrom of a market that Tascam has launched two more portable, stereo, solid state (SD) digital recorders – the DR-100 and the DR-07, fitting into the 'small' and 'pocket-sized' categories respectively. It's worth noting that the company does already have models on the market, including the HD P2 stereo machine which I reviewed (and loved) a couple of years ago.

Look And Feel

The DR-100 has four built in mics – two omnis and two cardioids – and you can choose which is most appropriate for the job at hand, and two XLR sockets for external microphones, though not the locking variety. It has that now-familiar 'Tazer Gun' look that's common to a lot of these machines, and it nestles quite comfortably in one hand.

It runs off the supplied Lithium Ion battery, two AA cells, or the mains, and has a tripod mount around the back. Interestingly, the two types of battery power co-exist and one will take over from the other when power is low, thus extending the remote life of the unit. You could change the AA cells while the rechargeable one keeps the recording going even longer, but this is a noisy activity for any recorder.

It also comes with a remote control if you need to stand back from the action, and a foam windshield that imbues a certain Russian Cossack look.

The front of the case houses the controls for record and playback, as well as access to the menu system, which is thankfully straightforward. There's a silver scroll dial that also doubles as a shuffle control when playing back recordings.

One useful feature on the front is a slider to select which input you want: either of the two built in mics, the XLR, or the mini-jack line in. There's also the LCD screen, which shows the usual: level meters, filenames, battery status, and the like. The backlight comes on as soon as you touch any of the controls, which is a useful touch.

On one of the side panels is the record level dial, which is satisfyingly chunky but can't be read from the top (the numbers aren't visible). On the other side is the power switch, mini USB socket, headphone output, and line in and out. On the rear are more slider switches; controlling phantom power for the XLRs, the built in speaker, auto gain, and the sensitivity of the built in microphones. Personally, I like having hardware switches lilke this, as LCD menus can be a faff. All I really want to read on a menu are the words 'Olympic Breakfast'.

A colleague pointed out that they make quite a noise and would pick up on a recording. But then why would you be fiddling while the machine was in use…?

Out And About

For one field-test, I took the 100 along on a recording session for a video game, capturing the sound of an Aston Martin. We'd roped in our Edirol R4 Pro, along with ►

THE REVIEWER

JERRY IBBOTSON runs Media Mill, a York-based audio production company started in 2000 that specialises in sound for video games. Prior to this, Jerry was a BBC journalist for ten years, ending his spell with the Beeb as a reporter and newsreader at Radio One Newsbeat.

Model shown
CMS 50

“In a class
of its own.”

- Audio Media Review - April 2009

CMS Active Nearfield Monitors

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But you don’t have to take our word for it. Sound on Sound, Audio Media and the M.I.P.A. panel are all in agreement.

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our old Marantz PMD 671. The customer had even brought his own Tascam HD P2 (bought after my review right here in *Audio Media*). Each of the other machines had something unique to offer: the R4 had its multi-channels, and the HD P2 its pristine sound quality. Even the aging Marantz, which has proved itself time and time again in the past, had its over-the-shoulder-handiness and 96kHz recording. In this context you could probably say that the outstanding feature of the DR-100 is the price, as all of these other units are more expensive to some degree.

At the time of the review, the lack of a 96kHz recording rate was a problem. It's often specified in our video game work, and 24/48 is almost, but not quite… However, post review we discovered that Tascam has addressed this and come up with a 96kHz update to the DR-100 softare. I didn't get to test it, but it does complete the I/O picture for the DR-100.

Having built in microphones offers flexibility, but in anything but the lowest of the three sensitivity levels I experienced a lot of handling noise with the DR-100. In the middle position, it was just about acceptable.

DR-07

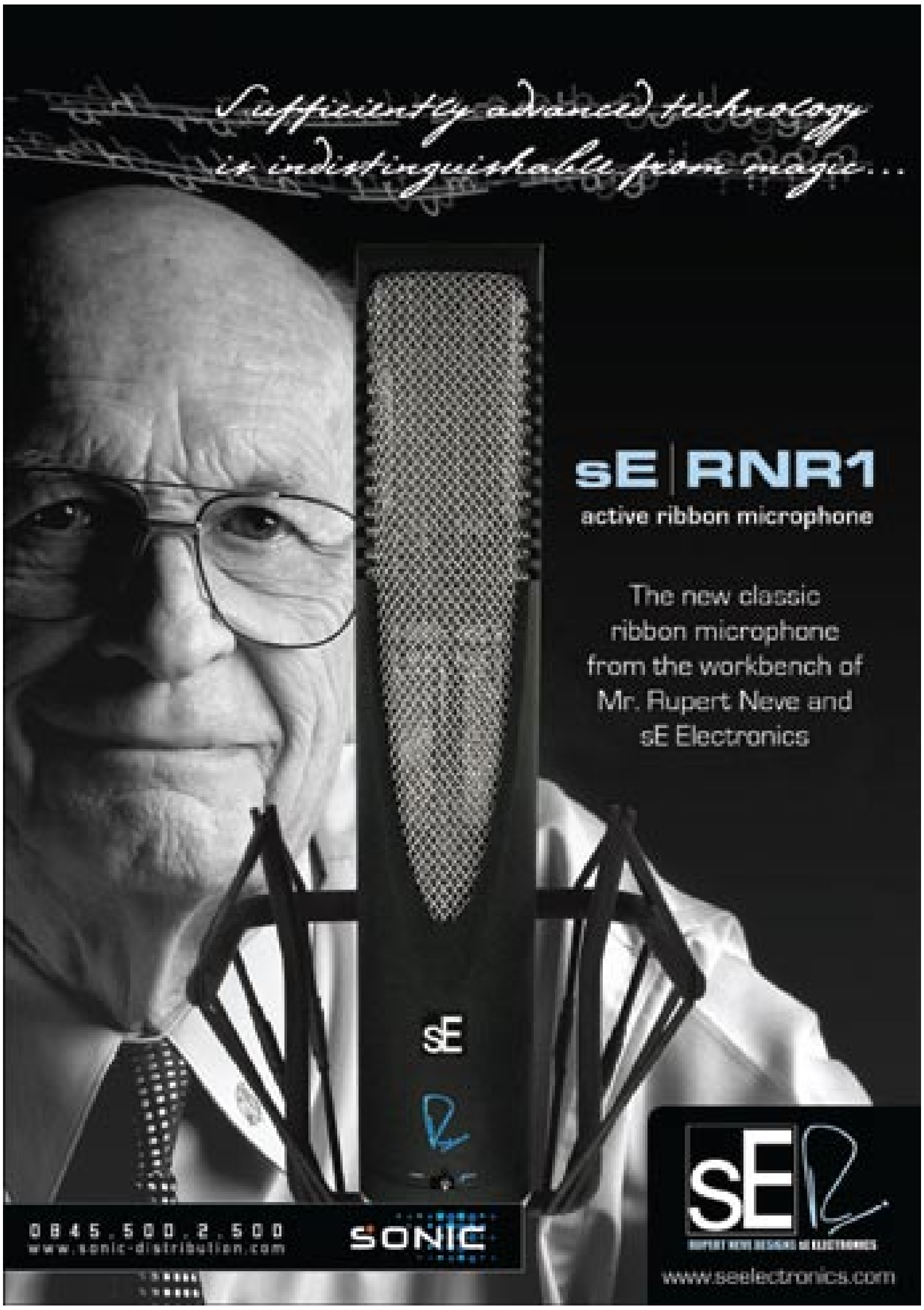
The smaller DR-07 looks a bit like a shrunken down DR-100, with two external mics on top and a similar foam windshield (though the windshield partially obscures the headphone socket).

A lot of the controls are in a similar position to the bigger machine, although the gain dial is smaller, and while there is a line in, there's no microphone input – not really a problem as the quality from the built in mics was pretty good and this kind of unit is more likely to be used by radio journalists and the like.

Right and left side panels of the DR-100.

I found the microphones to be quite directional, so if you're going to record yourself on the DR-07 you do need to turn the machine to face you, or you'll sound distinctively off-mic.

The DR-07 I reviewed did have similar handling noise issues as the bigger machine – while trying to hold it steady in-hand, I got a finger-rubbing-plastic sound from the case. In the push and shove of a press conference that could be disastrous.



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Conclusion

I do like Tascam gear. That HD-P2 is a great bit of kit, as our recent car recording session reminded us. The sound quality and overall build is top notch. I remember the first time I tested it back in 2005. It outperformed my Marantz PMD 670 with embarrassing ease.

> "A major selling point for both the units here then should be price. I found the the DR-07 advertised for less than half the price of a Marantz PMD 620."

A major selling point for both the units here then should be price. I found the the DR-07 advertised for less than half the price of a Marantz PMD 620. But then, the Marantz is a lot more pocketable, being the size of a fag packet and doesn't suffer from handling noise – a core consideration for a machine designed to be handheld. It's even got a nice metal face. The DR-100 was advertised among dealers at average of about GB£350. Taking into account fully specc'd mic inputs and so on, that's not bad either.

In a market bursting at the seams with portable recorders, these two new Tascams didn't do enough for me to add them to my collection. On the other hand, if you don't already use anything else, and price is an issue, they're perfectly decent, and you'll be perfectly happy.

INFORMATION

£ DR07 – GB£179.00 (inc.VAT)
DR100 – GB£429.00 (inc.VAT)

Ⓐ TEAC UK Ltd., Unit 19-20 Hatters Lane, Watford,
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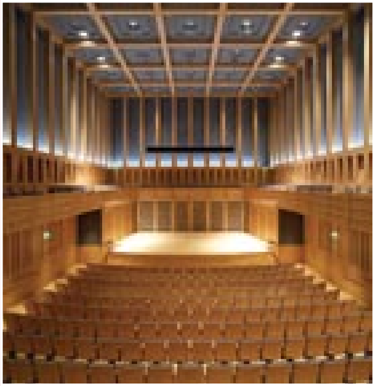

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Hall One At Number One?

ANDREW GRAEME finds a little not-so-little gem of a recording space, somewhere unexpected…

Here's a simple, general knowledge question for you. Where is the world's largest purpose-built recording studio, and just how big is it?

No, it's not in London, and it is not Studio One at Abbey Road. In fact, it isn't even close.

The world's largest purpose-built recording studio is Hall One at the Funkhaus complex on the banks of the River Spree in East Berlin. It has a staggering 900m^2 of floor space, and with a ceiling height of 16m, and has a total volume of just over 12,300m^3. It is so big that there is seating for 280 of your closest friends to watch you record. And it is only one of the six complete recording facilities within this complex.

At this point, you are probably saying to yourself, "I bet that's not a proper studio, but just another hall that has been altered and adapted." But you would be completely wrong. It was built for the specific purpose of recording large orchestral works, and is part of a studio building with 15,000m^2 floor space. All the studios, Hall One included, are built on the house within a house principle, and all are built with as few parallel surfaces as possible. The intensive use of bass traps and diffusers has given Hall One a -60dB reverb time that has been tested to be well over two seconds at 3kHz with less at lower frequencies. This gives the room an open and airy feel that may make it the ultimate live room.

In 1950, the East German Ministry of Culture decided to build the recording studio complex to end all recording studio complexes. Work began in 1951 and by 1956, four large music recording studios, the smallest being 'just' 160m^2, and two multi-room broadcast studios specially designed for radio plays were completed. The exteriors may be considerably less than beautiful – the style is called 'Bauhaus', the result is a mix of art deco and brutal, red-brick functionality that was the hallmark of East German state architecture – but some of the interiors are stunning.

The hall sizes are: Hall One, 900m^2, Hall Two 400m^2, Hall Three 160m^2, and Hall Four 200m^2. The two multi-room suites suitable for broadcast or rock recording have a total area of 400 and 500m^2. The larger suite has even got a 200m^2 Foley room, complete with carpet, wood, and stone staircase, and gravel and sand pits. The four halls are all isosceles trapezia. The Architect Franz Ehrlich worked with Chief Engineer Gerhard Probst ▸

THE SOUND OF REFORM

With the onset of the Cold War, the East German government decided to build a state of the art broadcasting facility to cover all national television and radio programming. A former wood processing plant covering a 13 hectare (32 acre) site was chosen on the banks of the River Spree to house what may have been Europe's first dedicated media centre. Here, over 5,000 people worked and even had their own shops, kindergarten, and a small hospital.

When the wall came down, East German broadcasting was still housed in the Funkhaus media centre, and for two years battled against an overweening bureaucracy, as the skeletons of controversy, crime and corruption fell out of cupboards. Senior management, under Director General Heinz Adameck, desperately tried to redraw the past in an effort to hang onto their jobs, or at least stay out of prison.

The heyday for East German culture came in the mid sixties under reformist Minister of Culture Hans Bentzien. The sound of rock music and socially critical plays coming from the Funkhaus displeased their Soviet masters and Bentzien was demoted to Head of Drama and then demoted again to humble reporter. A year after re-unification, he was made Director General for one short year, but then the Funkhaus was closed and Western style public broadcasting was introduced.

The Engine Room

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and Acoustician Lothar Keibs to build what has to be the ultimate recording studio complex.

But strangely, even in Germany, if you were to ask most industry professionals about the Funkhaus, they would shake their heads. After half a century of communist isolation, almost nobody has heard of the place. Even today, a uniformed private guard makes sure that only the invited are allowed in, and media interest in this unbelievable facility has been conspicuous by its absence.

In 2006, the heart of this complex was bought by Israeli businessman Albert Ben-David for just €3.4 million, which may seem a bargain, considering that one valuation came in at €30 million, but just a year earlier the sale of the property behind closed doors for just €350,000 caused a political storm and is still subject to a police investigation.

New owner Ben-David immediately put a stop to vandalism and the pilfering of East German memorabilia, and began renovating the more derelict buildings to make them attractive to media companies and generate a rental income. So far, he has spent a reported €2 million in much needed work, such as getting electricity back on site, generally cleaning up the area, and replacing broken lighting and windows in the old office buildings.

There are now literally dozens of media studios that have rented space in the complex, as well as band rehearsal rooms and other artists. The old radio play studio H1 with four large recording rooms and a roomy centrally placed control room is now used by Planet Roc. The largest live room is about 180m^2 and the total studio area is about 500m^2. Its neighbour in Studio P4 has an even bigger space and has rented Halls Three and Four, as well as having several smaller rooms for isolation and control rooms and a nearby office, possibly making it the largest independent commercial recording facility in Germany.

What impresses the visitor most is the sheer scale of the place. In this World where studios are becoming smaller and smaller, and less emphasis is placed on good acoustics and a pleasant atmosphere, it is refreshing to walk into room after room, where the lower ceilings are four meters high and even the smaller halls such as Hall Three have ceiling heights of six meters and more.

The exteriors may not be particularly attractive, but inside the studios, everywhere one looks, there are exquisite woods and beautiful materials. Every surface in the live rooms is covered with bass traps and diffusers, or elegantly finished red brick, and built at a time when cost was just not an issue.

Rather than a room-in-a-room, the building was built as eight separate buildings, each with its own independent foundations, inside one large exterior, what one might call house-in-a-house. The four main halls are reinforced concrete and have reinforced concrete ceilings for both interior and exterior buildings. Around Hall One, there is between two and five meters of space between the outside and the inside walls. Hall One also has a massive pipe organ with proper 30-foot bass pipes, but it has sadly fallen into disrepair and is now no longer working. Renovation costs have been estimated to cost about €500,000, and with one of the world's greatest organs now sitting in the newly rebuilt Frauenkirche in nearby Dresden, a future repair is unlikely.

Halls One and Two are rented out directly by the ownership and management company Keshet (Hebrew for rainbow) without any recording equipment, but both P4 and Planet Roc can be hired to bring their equipment into the old control rooms, and of course visitors can always flight case their own stuff in. Because of the sheer size of Hall One, it has become a favoured location for local corporate events and video shoots.

Although the two main resident studios Planet Roc and Studio P4 cater mostly to local talent, Planet Roc has been able to attract the Black Eyed Peas, Sting, and A-Ha. In the second radio play studio facility, former State Engineer Peter Kainz is back at his old work place where he began 40 years ago as a technician. He has just signed a three year lease on his former work place, and continues to produce radio plays, mostly for public broadcasters. Today, he uses the same desks that he used when working for the former state broadcaster, but combines them with Pro Tools.

Hall One has been used by Daniel Barenboim, and Universal, BMG, Sony, and EMI have used it to record full orchestras, while the film orchestra Deutsche Filmorchester Babelsberg used Hall One continuously from 1993 until 2007.

After using Hall One to record the Berlin Philharmonic Orchestra, Barenboim said, "This has to be one of the best recording rooms in the world. It allows the musicians to be able to hear themselves so well that they can add depth and colour to their playing." AM

A CITY OF TWO TALES

Berlin is a fascinating city of contrast. West Berlin has luxury and wealth written all over the city centre. The shops strung out along the world famous Kurfursten Damm, known locally as the Ku-Damm, will have your wallet begging for mercy. In the centre of the city, with the Ku-Damm at one end and the Brandenburg Gate at the other, there is a large park called the Tiergarten where you can stroll and enjoy the Summer sunshine. At night, the park serves as a centre for prostitution, muggings, and drug taking.

Nearly all the poorer areas are in former East Berlin, where a bohemian atmosphere of students and young families rub shoulders with poverty and crime. Every pavement is a minefield of dog faeces, and many streets have abandoned cars up on blocks. Affluent socialites look away as old people, unable to make ends meet on a meagre state pension, dig through bins, looking for deposit bottles. Almost every building has been tagged with graffiti, and more graffiti adorns those bits of the old Berlin Wall kept as a reminder of what once was.

So it was with amusement that I watched some Japanese tourists being photographed in front of an old section of The Wall, probably unaware that the lettering behind them was not a message of peace, love, and re-unification, but stated, 'Glasgow Rangers – f*ck off!'

INFORMATION

www.nalepastrasse.de
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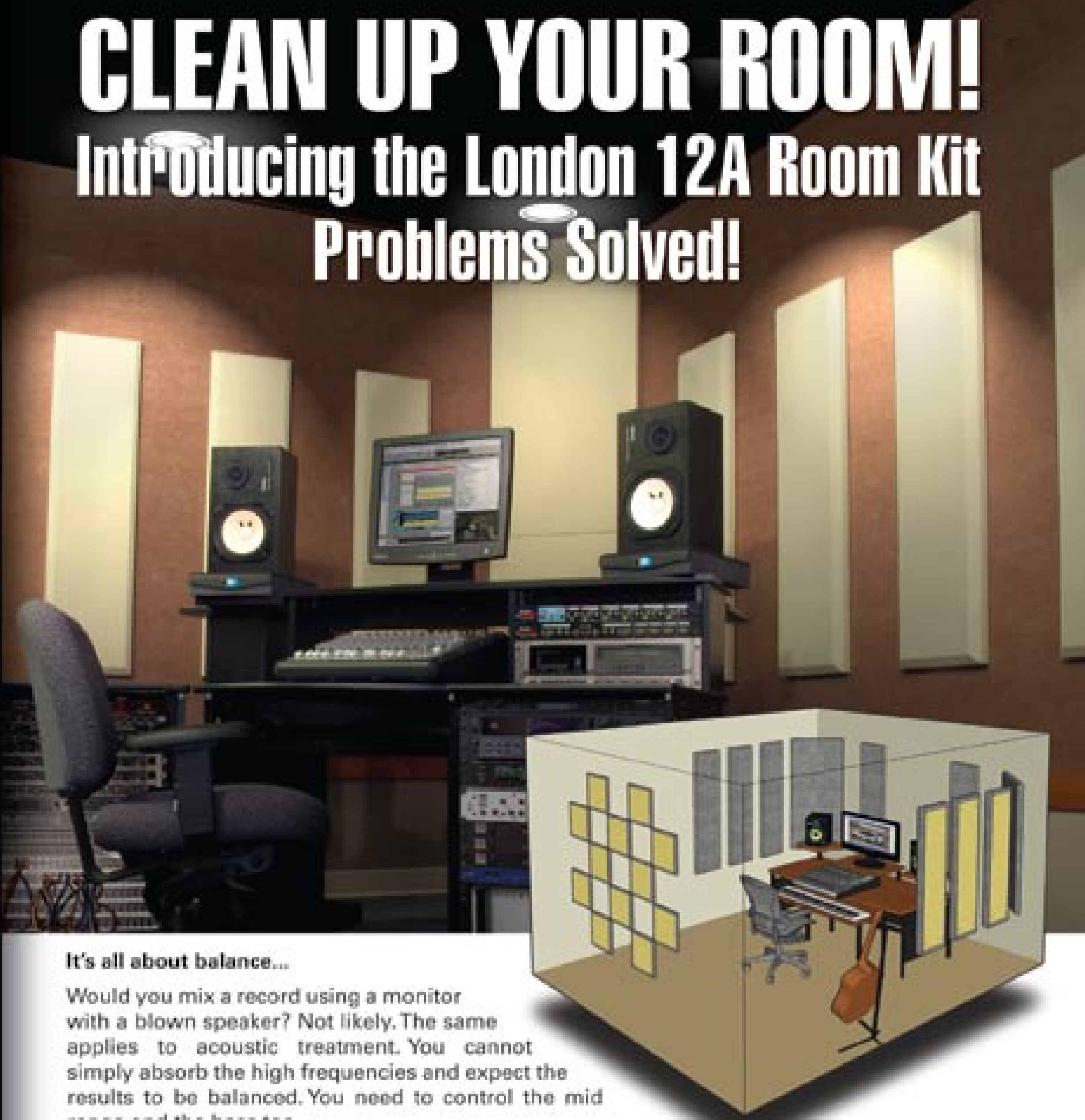

"When my partner and I were setting up our new studio, we had rooms that were basically true rectangles. We wanted to keep the aesthetic of the room, such as the red brick and hardwood floors intact but tune the room to an international standard. I turned to Primacoustic because I was familiar with their product from being in studios I had worked at. We purchased MaxTraps, FullTraps and Broadway acoustic panels and even though I am a bit of a novice when it comes to construction, I was able to easily install most of the units myself. They have dramatically changed the sound of the room for the better. I've just recently got the last bass trap in place and the panels have controlled the reflections in the room perfectly. I love mixing in our room now. Mixes are translating really well to my home listening room and especially the car. We also have Broadway panels in our vocal booth along with the Cumulus corner traps. They took the honk out of the room without adding that boxy sound you can often get with other room treatment. Listening in the room now is a pleasure and I can work for hours without over fatigue."

– David Bottrill

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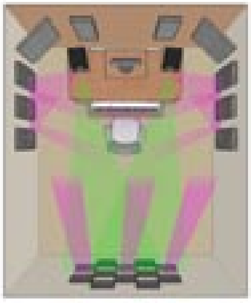

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Ableton Live 8

RICHARD WENTK discovers that it's not quite a festival in a laptop – but it's close.

Ableton's Live has been around for five years now, and has become as essential to laptop musicians as Stratocasters and Les Pauls are to guitarists. It was easy to dismiss the earlier versions as toy clip players, but over the last couple of releases, it's started to mature and now offers professional users some unique and unusual features.

If you're new to Live, its most obvious appeal is as an arranging and performance tool. Audio and MIDI clips can be arranged in scenes on a grid. You can play a single clip by clicking on it, or you can play all of the clips in a scene at once by clicking on its master slot at the right. It takes no time at all put together verse/chorus structures in the scene slots and switch between them as the arrangement plays. There's no limit to the number of scenes, so you can make your set as complex as you like. By default, switching is delayed to the next beat or bar, so changes are smooth and musical. Timestretch is automatic and follows tempo changes.

If clip switching doesn't do what you need, there's a more conventional sequential arrangement option. This works like a traditional DAW, and includes the usual recording, editing, and automation features. You can even switch between modes while an arrangement plays. MIDI editing uses a clever combined piano roll and controller bar display, which works well but might take a little getting used to if you've clocked up a lot of hours on the more usual suspects.

Clip lanes lead to a virtual mixer area that includes the usual mutes and solos and an arbitrary number of sends. There's also space for an arbitrary block of insert FX per lane. FX can include VSTs, or Live's own selection of plug-ins. The list of plug-ins is long and impressive, and includes traditional dynamics and EQ option, delays, reverbs, and more exotic extras like digital bit crunching, physically modelled membranes, and resonators. Most of the plug-ins sound respectable, and some of them sound very good indeed. In my opinion, Live doesn't quite have the relatively smooth and warm sound of Cubase/Nuendo or ProTools, but it's a step up from competing clip assembly tools like Sony Acid.

> "It takes no time at all put together verse/chorus structures in the scene slots and switch between them as the arrangement plays. There's no limit to the number of scenes, so you can make your set as complex as you like."

This area also includes a clip editing feature, which takes you deeper into Live and gives you a frightening degree of control over how clips are handled. They can be loaded into memory or played from disk, and there are also six different time stretch options with different trade offs between sonic content, processor demands, and audio quality. Start and end points can be set, with plenty of variation so you can set up samples to play once per four or five bars without having to edit in some dead air. You can also set up clip chains which cycle or switch between clips semi-randomly. The pitch and nominal tempo of a clip can be changed, and of course you can also make clips play with no alterations, stretching or looping. This section has been updated in this version with smoother and more click-free time stretching. While it's not completely transparent, it can sound very good, especially if you hand optimise the settings.

Unexpected Twists

So far, we have a fairly traditional DAW with some looping features. But the mixer and FX section has some unexpectedly powerful options. You can load an arbitrary collection of FX into any track lane. Signal flow is left to right, and there's no software limit on how many processors you want to use. Even more usefully, you can package up processor collections into preset racks. These can be dropped into FX slots as a single processor, and these can be nested indefinitely, so there's no limit on the complexity of FX chains. Chains can be given an eight-way 'macro' controller, which is a set of eight virtual control knobs that can be named and mapped to any or all of the underlying parameters. A single knob can be multiple duty with different scalings for multiple parameters. So it's easy to link compression ratio to gain makeup to create a single control that automatically turns up the volume as it turns up the ratio. There's no limit to how many parameters can be mapped to a single knob, so you can create useful, practical, and sensible controls – like auto gain makeup – or wild and extreme transformations of multiple effects. Virtual knobs can be linked to an external hardware controller, so you're not limited to mouse-only action.

Dig deeper, and there's even more to find. You can ▸

THE REVIEWER

RICHARD WENTK is the owner of Skydancer Media, a digital production company providing sound, image, design, and consultancy services to various clients in London and the West Country.

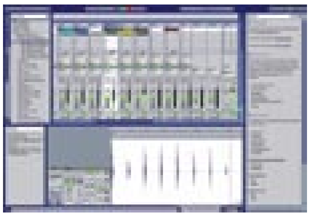
load a group of chains and presets into a single slot and select or even crossfade between them under MIDI control of key number or velocity. When used with VSTsi, you can easily patch together a keyboard performance multi-patch with arbitrary MIDI splits and instrument collections, each with separate FX. When used to process audio clips, you can 'play' arbitrary FX selections from a keyboard while the clip plays. If you combine MIDI switching with Macro control and an external controller, you can perform and mutate FX in completely new ways – a couple of steps beyond what's possible in most DAWs, and far beyond what's likely with hardware outboard. Some, but not all, VSTs can be automated too, so you're not limited to Ableton's own FX.

Boxed Up

As a product, Live is split into two and a half versions. The entry level 'LE' version is still on version 7. As you'd expect, it includes the basics but is limited – you can't use more than two VSTs at once, which more or less eliminates it as a professional contender. Further up the Live catalogue are Live itself, and an expanded version called Suite, which adds a full complement of software synthesisers and samples. Both are split into downloadable and boxed versions. The boxed versions add yet more samples and a paper manual. Because you'll want the included sampler – it's easier to use than most VST samplers – Suite is the version to buy. But I'm not totally convinced by the extras in the boxed version. Aside from a couple of not very exciting sample CDs, it also includes the Essential Instrument Collection (EIC 2), which is a 15GB bundle of orchestral samples. EIC 2 is limited but perfectly usable. It's not obvious why it includes strings, woodwinds, choirs, orchestral percussion, and a Linndrum kit. But whatever the reason, orchestral writing remains a minority interest. And Live doesn't have a notation editor.

The other synthesisers and samplers show more promise. I wasn't 'wowed' by the sound of physically modelled synthesis in Tension and Collision, but Operator and Analog both sound good, and Sampler is excellent. If you don't want to buy the full Suite bundle, you can buy Live and add Sampler as a one-off extra.

Basic FX chaining is as easy as dragging and dropping FX from the library into this slot.



Live is almost a one-screen app. The bigger your monitor, the easier it is to use.

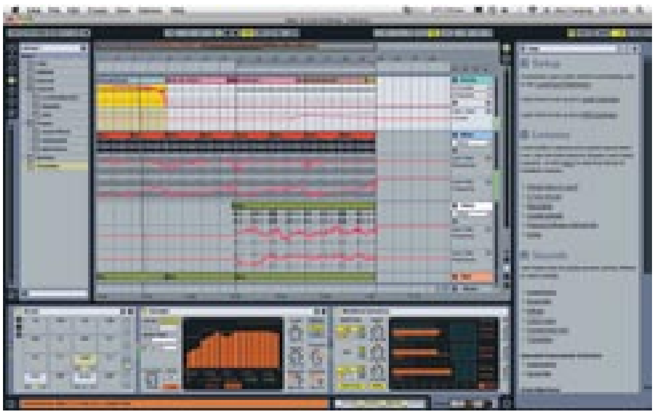
> "In sound design and post, the ability to trigger clips is useful, but it's almost overshadowed by the mixing and FX patching possibilities, which really are in a league of their own."

Coming Up Next

The changes in version 8 are more incremental than spectacular. Loops can have a groove applied, and there are also some new effects, including a frequency shifter – which sounds more like a rich phaser, and doesn't do pitch shifting – and a vocoder. Workflow has been tweaked in a number of places, including improved MIDI editing. You may not be awed by the new Latin Percussion library, but if you buy Suite, quite a few of the vast collection of new preset sounds could have applications for beds and stings. In fact, Live is hugely useful for production music as well as sound design. Intricate editing of takes and comps isn't a strong point, but it will help you put together a background ambience or a generically jaunty corporate musical backdrop more quickly than a traditional DAW would.

It's also worth mentioning some future developments. Coming up soon is Max for Live, which is a version of Cycling 74's Max/MSP – a modular audio and video development environment along the lines of Native Instruments' Reaktor, but aimed at more creative and innovative use and not so much at synthesiser, sampler, and drum machine design. This will make it possible to build plug-ins and effects of unlimited complexity. Potentially any feature of Live will be under software control, so software-controlled arrangements and mixes will also become possible. These will go beyond automation, making it possible to assemble complete mixes from semi-randomly selected clips. It's too early to say more, but look out for a full review when Max for Live is released.

Also worth mentioning is Live's hardware support. Templates for basic controllers – more M-Audio and Mackie than Euphonix – are included with Live. It's possible to roll your own controller definitions, but only if you know how to wrangle XML. For tailored control, Ableton has done a deal with Akai to create a custom controller for Live called the APC40. At GB£350+VAT, this is an affordable alternative to mousing, and makes it easy to trigger clips and scenes and work with FX chains in a hands-on way.



Mac and PC versions are almost identical, although there seem to be more reports of bugs and issues on the Mac release.

On The Downside

The one major disappointment in Live is the lack of surround support. Neither surround nor 5.1 are mentioned in the manual, which remains a shame for studio work. As a workaround, it's possible to install Live as a Rewire application, and pipe audio and MIDI in both directions to and from a more surround-friendly DAW, adding spatialisation and reverb as it goes.

The lack of support for multiple monitors and detachable windows remains more irksome than fatal. Only VST plug-ins get floating windows of their own. All of the other elements of the Live interface are concreted in place, so you can't rearrange the work area or spread it out across a dual or triple monitor set-up. The directory window is the most obvious victim of this – the same window slot does multiple duty, selecting sets, plug-ins and FX, and disk content. This is unwieldy in practice and could do with being streamlined.

A final nitpick is that updates don't update – they install from scratch. Settings are copied, but unlike almost every other software product in history, installing the 8.0.3 version of Live leaves complete installs of 8.0.0 and 8.0.1 in their original directories. This is a bizarre waste of disk space. It doesn't help that every update of Suite requires another 1.3GB download of the complete package, and after re-installation it takes Live the best part of an hour of unproductive time to rescan its default content. This seems more than a little lazy, and really needs to be sorted out.

The Verdict

In spite of the irritations, I'm still very impressed by Live. It's easy to dismiss it as a toy in the style of Garageband, but it's much deeper than that. In sound design and post, the ability to trigger clips is useful, but it's almost overshadowed by the mixing and FX patching possibilities, which really are in a league of their own. I'd love to see a surround version, even at a higher price. In the meantime it's well worth taking some time to explore the time-limited but full-featured demo version available as a download. Check out the FX chains and automation – you'll like what you see. AM

INFORMATION

Ⓛ GB£399.99 (Live 8), £599.99 (Suite 8) (inc.VAT)

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Ⓐ UK Distributor: Focusrite Audio Engineering, Lincoln Road, Cressex Business Park, High Wycombe, Bucks, HP12 3FX
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I/O Interfaces

Audio Media scours the globe in search of the perfect solutions to your interfacing needs.

How can you guarantee that wonderful vocal you're hearing is going to sound as good on your computer as it does now? The following assembly of DAW-friendly I/O interfaces are guaranteed to provide seamless transition and sumptuous sound.

The USB Dual Pre from Applied Research and Technology (**ART**) utilises two low noise input channels (balanced XLR or 1/4-inch TRS) with signal present and clip LED indicators. The unit can run directly from the mains or USB 1.1 connection, or can be powered via the internal 9V battery, which provides up to 50 hours of operation when phantom power is off or approaching 20 hours when switched on.

www.artproaudio.com

Building on the established 1081 and 1081R modules, the 4081 Quad Mic Preamp from **AMS Neve** enables operation of four classic mic pres by remote control or via a computer running Neve Remote Control software. Up to 64 independent channels of mic pres or line level inputs can be attained by linking multiple units together. An optional digital card provides a FireWire/AES interface with four channels of A/D conversion to either AES or FireWire.

www.ams-neve.com

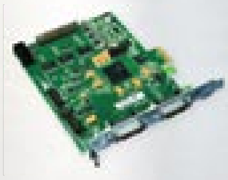
The MicPort Pro from **CEntrance** has a list of users that include the BBC, CNN, and Warner Brothers, and is billed as "the only portable mic preamp with a built-in, 24-bit/96kHz, broadcast-quality A/D converter." The compact device has a 103.5dB dynamic range suitable for high-end condenser and ribbon mics, and includes 48V phantom power, studio-grade control knobs for preamp gain and headphone volume, plus USB connectivity.

www.centrance.com

Alesis' MasterControl combines an audio interface, control surface, and control room manager in one package. The model features 24-bit/192kHz low-latency audio management, with two 48V phantom power and channel inputs joined by six ¼-inch TRS line jacks. The output capabilities are handled by six analogue channels and sixteen-channel MIDI I/O – all communicating with DAWs via FireWire. Furthermore, an advanced DICE II chip with JetPLL technology ensures clock-stable FireWire audio streaming and routing.

www.alesis.com

Apogee's Symphony 64 system has recently gained DAW functionality with the release of the new Symphony 64 PCIe Card that provides flexibility of up to 64 channels of I/O. The system now boasts low latency (1.6 milliseconds at 96kHz), maximum plug-in processing, powerful music production with Apple's Logic Pro, and SBus and VBus for extended audio routing. The system is compatible with Apogee Rosetta Series or X-Series converters equipped with the X-Symphony expansion card.



www.apogeedigital.com

The 003 Factory from **Digidesign** is built to feel and act like higher-end mixing consoles, and boasts an impressive array of I/O options including 18 simultaneous channels of audio I/O, eight analogue inputs, eight analogue outputs, four mic pres with individual gain and high-pass filter plus 48V phantom power, eight channels of ADAT optical I/O or two channels of S/PDIF optical I/O, and two channels of S/PDIF digital I/O.

www.digidesign.com

With an internal soundcard that features eighteen FireWire inputs and eighteen outputs, plus a further 16 ADAT I/O, the ZED-R16 from **Allen & Heath** is bursting with versatility. Two analogue recording outputs bolster the digital options, plus each channel on the mixer has its own independent soundcard channel for simultaneous or separate recording of instruments (pre or post EQ) into the sequencer. A JetPLL digital audio chipset minimises clock jitter and maximises synchronicity.

www.allen-heath.co.uk

Behringer's compact and flexible FCA202 is geared towards laptop musicians and can also complement studio use. The unit utilises 24-bit/96kHz converters and is equipped with dual six-pin FireWire connectors that can also power the device (mains adapter also included). Two ¼-inch connector I/Os, combined with rugged construction plus useful features such as a volume controlled headphone output, make the FCA202 a suitably portable companion.

www.behringer.com

The UAX220 v2 from **Digigram** is an ideal solution for broadcast applications with true plug-and-play capabilities for a laptop computer on the road or a desktop computer in the newsroom or studio. The unit features 2/2 high-quality balanced analogue I/Os and connects to computers via USB. The UAX220-Mic boasts similar features and is suitable for broadcast, live performance, recording on location, DJ applications, and music production.

www.digigram.com

be inspired

14-16 JULY 2009
Develop in Brighton

The Develop Conference is an inspiring place – over 80 great sessions given by a host of international games development experts and around 1200 developers from 29 countries getting together to share ideas, learn from each other and socialise.

Plus this year there's innovative new content with the launch of **EVOLVE** – a new one-day event focusing on developing games for new platforms, new markets and new technologies – which will open the Develop Conference on Tuesday 14 July and continue as a new track within the conference on Wednesday 15 July.

The Audio Track line-up for 2009

AUDIO KEYNOTE

The Runtime Studio in Your Console: The Inevitable Directionality of Game Audio
Guy Whitmore, Microsoft Game Studios

Dolby in Games – Every Bit Amazing
Simon Arnold & Marc Langsman, Dolby Games Group EMEA

Moore's More Story-Telling Power Of Sound: The Eagerly Anticipated Sequel To Last Year's Highly Popular Session
Paul Moore

Painting With Sound: The Future of Procedural Audio
Andy Farnell

Gold Blend: Audio Code and Design Working Together for the Perfect Flavour
Steve Emney and Ciaran Rooney, Disney Black Rock Studio

Real-time Audio: Context Is Everything
Kenneth Young, Media Molecule

Orchestral Soundtracks for Videogames: The Vital Do's & Don'ts For a Successful Orchestral Project
Allan Wilson

Guerrilla Tactics: Designing Audio for Killzone 2
Mario Lavin, Guerrilla Games

The 2009 Open Mic Panel Session: What will be the key factors for the development of game audio in the future?
Alastair Macgregor, Rockstar North
Greg O'Connor-Read, Music4Games, Inc.
Guy Whitmore, Microsoft Game Studios
Kenneth Young, Media Molecule

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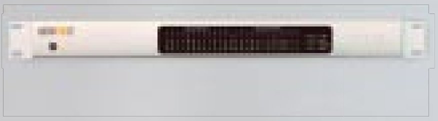


Echo Digital Audio's AudioFire range comprises two, four, eight, and twelve I/O models, with the latter two recently receiving software updates. The AudioFire 12 offers 24-bit/192kHz recording and playback, analogue I/Os (TRS), two FireWire ports, MIDI I/O, and word clock synchronisation. Software features include software console for monitoring, metering, and setting levels, plus low-latency drivers that support all major pro audio software.

www.echoaudio.com

The newly announced I·ONIX FW810S from **Lexicon** combines the company's sampling expertise with dbx's high-voltage, low noise mic pres. The FireWire interface provides 96kHz sampling, integrated channel strip processing, and built-in dbx Type IV conversion, plus a software mixer that also includes a dbx compressor, limiter, gate, and EQ on each channel. The unit can also save and load up to five monitor mixes – one for the main mix, and up to four for individual band members.

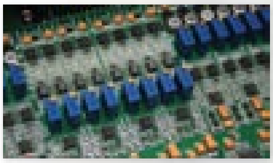
www.lexiconpro.com

Metric Halo has just launched the new ULN-8 audio processing converter and FireWire interface. Building on the company's Mobile I/O 2882 and ULN-2, the new unit features archival-grade converters, enhanced digitally controlled ULN Preamps, dedicated analogue-domain sends and returns, analogue domain 7.1 monitor controller, AES interfacing, and extensive front panel control. This is all built atop Metric Halo's fifth generation 2D processing, mixing, and FireWire interfacing platform.

www.mhlabs.com

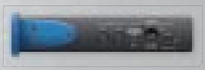
The UA-4FX from **Edirol** is a competent USB audio/MIDI interface with up to 24-bit/96kHz resolution. The unit features both analogue and digital I/Os, whilst the S/PDIF optical output can be harnessed by Windows XP users for Dolby Digital or DTS 5.1 Surround output. The unit also comes with many built-in effects within mastering, listening, performance, and tube-amp simulation categories.

www.edirol.com



The Aurora 16-VT Variable Trim model from **Lynx Studio Technology** expands the Aurora line of 192kHz AD/DA converters. User controllable analogue I/O levels are adjustable within a range of +8.5dBu to +24dBu via 32 miniature trim pots mounted on the primary circuit. The onboard 32 channel digital mixer provides flexible I/O routing with connectivity supplied via PCI, PCI Express with AES16 cards, ADAT, Pro Tools|HD, FireWire, and MADI options.

www.lynxstudio.com



MOTU's Traveler-mk3 is engineered for high-end mobile recording applications delivering four high quality mic inputs, bus power, optional battery power, and DSP-driven mixing and effects processing. Eight channels provide 192kHz of analogue recording and playback, combined with twenty channels of digital I/O in ADAT optical, AES/EBU, and S/PDIF formats. The unit also features plug-and-play function with FireWire 800-equipped Macs, and can be expanded by connecting additional MOTU FireWire audio interfaces or the eight pre mic input expander.

www.motu.com

Fairlight's CC-1 PCIe Card can be installed in any compliant host PC operating Windows XP in three different combinations: 96 channels/32 busses/110 physical I/Os; 144 channels/56 busses/164 physical I/Os; and 230 channels/72 busses/212 physical I/Os. Powerful technology means that 230 high resolution audio channels can be processed concurrently, each with eight bands of EQ and three stages of dynamics by a single CC-1 card hosted in a Windows PC.

www.fairlightau.com

Mackie's U.420 four-channel stereo line production mixer is designed with modern musicians and producers in mind with a layout that places the micro-master section right at the centre. Features include 24-bit/96kHz FireWire I/O, four high-headroom stereo line inputs, built-in DI box, 3-band 'full-kill' active EQs, separate FireWire input level control and loop-thru switch, plus stereo aux send for monitoring and effects.

www.mackie.com

Native Instruments' portable audio interface AUDIO KONTROL offers 24-bit/96kHz resolution plus a tactile user interface with freely-assignable buttons, a controller knob, and advanced MIDI key commands. The unit also provides two balanced inputs, one line/mic (XLR/1/4" TRS Neutrik, phantom power supplied) and one line/HiZ (TRS), plus four balanced outputs (1/4" TRS) with two stereo level controls. The unit is USB 2.0 bus powered with MIDI I/O capabilities.

www.native-instruments.com

The Liquid Saffire 56 from **Focusrite** boasts 28 inputs and 28 outputs with six Focusrite preamps, six Saffire preamps, and two Liquid preamps. Each Liquid preamp allows the choice of ten different classic pre-amp emulations. The company's flagship 2U multi-channel FireWire audio interface also hosts ten analogue outputs, sixteen channels of ADAT I/O, stereo SPDIF I/O, MIDI I/O, and two virtual 'loopback' inputs for routing digital audio between software applications.

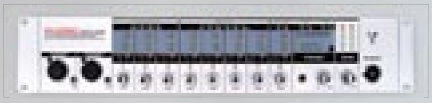
www.focusrite.com

The Sphynx-2 from **Merging Technologies** is the product of a joint collaboration with Danish Digital Audio Denmark (DAD) and packs some serious technology under its bonnet. The eight-channel integrated AD/DA interface utilises Crystal chip technology to produce "the most advanced and sonically pure converter ever developed." Units can be daisy chained to provide up to 64 channels at 1FS, while remote operation is provided by RS 422 or USB.

www.merging.com

The nio 2|4 from **Novation** is a mobile USB interface with inbuilt 'Direct FX' technology that places a powerful multi-effects engine within nio 2|4's custom drivers. The unit also features filters, delay, chorus, and phaser effects derived from Novation's Supernova II synth plus EQ, compression, gating, and reverb solutions from Focusrite. Input is provided by an XLR with phantom power on the rear, and a ¼-inch jack on the front.

www.novationmusic.com



The new Firefly 808 rack-mountable FireWire audio interface from **Phonic** features 24-bit/96kHz resolution, eighteen simultaneous I/Os, eight microphone preamps with trim control and individual phantom power switches, eight analogue line inputs including two instrument inputs, eight channels of optical ADAT I/O, S/PDIF I/O, AES/EBU I/O, MIDI I/O, and word clock I/O. The company also produces the Firefly 808 Universal that offers similar features, plus USB 2.0 functionality.

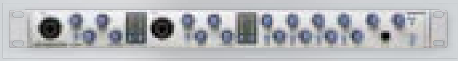
www.phonic.com

The **SADiE** LRX2 Location Audio Workstation has been designed for recording environments and remote recording applications, and is equally competent at capturing original soundtracks for film and television productions or producing location multi-track audio recordings. The unit utilises SADiE's audio input and output 'slither card' I/O modules, and can use a standard laptop via USB 2.0 as the host computer. The LRX2 also boasts an impressive array of digital and analogue I/O options.

www.sadie.com

Studio Konnekt 48 Fire Wire audio interface is the most complete product **TC Electronic** has ever made with a wealth of recording tools at the users disposal including DSP effects, a large array of I/O options, and speaker management to name a few. Four IMPACT II preamps make up part of the twelve analogue ins matched by twelve analogue outs on the rear panel. Digital I/O is provided by the 24/8 channel digital mixer with 48-bit double precision summing.

www.tcelectronic.com



The FireStudio Tube from **PreSonus** is a 16x16, 24-bit/96kHz professional FireWire recording system that boasts two class A vacuum tube microphone and instrument preamplifiers with analogue limiters. Eight class A XMAX microphone preamplifiers and six balanced TRS line inputs join the tube inputs, while six balanced TRS outputs and a headphone out make up output capabilities. Also included is PreSonus' 16x8 FireControl mixer/router that delivers up to four zero-latency custom monitor mixes easily and quickly.

www.presonus.com

Solid Sate Logic unveiled its new MX4 128-channel MADI I/O with DSP powered SSL software mixer at Messe this year. The unit is geared towards demanding 'in the box' users, and combines a high channel count/ high quality audio interface, a versatile software mixer, and DSP powered plug-ins. The interface provides 128 channels of digital audio I/O over fibre optic MADI, and is compatible with Mac or PC with SSL's 'PCIe-Core Audio Pipeline' drivers.

www.solid-state-logic.com

Terratec's USB 2.0 audio system, the DMX 6Fire USB is the unofficial successor to the company's DMX 6Fire 24/96 with ramped up audio resolution (24-bit/192kHz) and a USB 2.0 jack in place of the PCI expansion card. Four analogue inputs and six analogue outputs are bolstered by an XLR combo mic jack with switched 48 V phantom power, a -20 dB pad switch, and separate gain control.

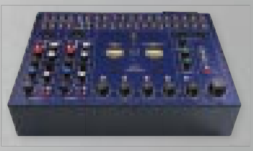
www.terratec.net

The Orpheus from **Prism Sound** is suitable for music and sound recording, multi-tracking, overdubbing, stem-based mastering, analogue summing, and critical listening applications with a dedicated FireWire interface compatible with both Windows and Mac OSX. Four integrated mic pres with switchable phantom power are augmented by eight Prism Sound premium-quality AD and DA channels, whilst output is selectable between workstation bus and the Orpheus mixer.

www.prismsound.com

The MR816 CSX from **Steinberg** not only fuses a FireWire interface with inbuilt DSP FX power, but also unites Steinberg's and Yamaha's impressive experience. The Advanced Integration DSP Studio provides the base for a latency-free recording and monitoring system. I/O features include eight discrete Class A analogue 'D-Pre' mic pres with combination XLR and TRS analogue inputs with advanced new inverted Darlington circuits, hardware gain knob, phantom power, and -26dB pad.

www.steinberg.net



TLAudio has a DO-F Firewire interface card available for the M1-F 8, the twelve channel consoles, and the Fat Track Tube Production Suite. The DO-F is designed to offer an easy solution for interfacing TL Audio's products with a Mac or PC based DAW. The compact M1-F Tubetracker is suitable for home and project studio as well as broadcast and recording applications, while the Fat Track is designed to be the centrepiece of any home, project, or professional studio.

www.tlaudio.co.uk

The soon to be released Fireface UC from **RME** is based on the company's newly developed Hammerfall core, and uses two distinct firmware versions with different transfer methods to remove current restrictions of typical USB audio interfaces. The unit provides 18x18 I/O channels, eight analogue I/O, one ADAT I/O or one SPDIF I/O optical, one SPDIF I/O coaxial, two MIDI I/O, and two mic Pres with digitally controlled gain.

www.rme-audio.com

The US-1641 from **Tascam** includes eight mic/line inputs plus six line inputs and, when combined with bundled Cubase LE4 software, offers 48 tracks of 24-bit/96kHz recording power. USB 2.0 technology enables expansive interfacing options with the company stating that the unit condenses the "interfacing power of a big console into only one rackspace". The eight mic inputs employ proprietary Pro mic pres with 60dB of gain and phantom power.

www.tascam.com

The N series consoles from **Yamaha** are designed for 'studios that think digital but act analogue', combining analogue hardware with digital internals. The series features EQ, compression, and auxiliaries with high-quality preamps that the company states are the best available in its class. The range comprises the N8 (four mic pres, two stereo inputs, 12x12 interface) and the N12 (eight mic pres, two stereo inputs 16x16 interface), both connecting digitally via FireWire.

www.url.com

video guide

A Sound Pro's Guide To Video

Post Production Part 3

KEVIN HILTON rewinds back to the earliest cutting technology; and then presses the fast-forward button to see where the future took the art of editing.

Editing is key among the arts of filmmaking, although, as its practitioners like to point out, at its best it is an invisible art. Many editors still refer to the process as cutting and, in a self-deprecating way, to themselves as cutters. But it is much more than a mechanical procedure that merely puts scenes in order.

Films have been edited in a variety of radically different ways and styles since the early days of cinema. French New Wave maverick Jean-Luc Godard famously observed that every film should have a beginning, a middle, and an end – but not necessarily in that order. Quentin Tarantino made non-linear narrative his calling card in *Reservoir Dogs* (1992) and *Pulp Fiction* (1994), but even bolder liberties have been taken with continuity by directors like Nicolas Roeg. In films including *Bad Timing* (1980) and *Don't Look Now* (1973) Roeg, who started out as a cinematographer, not an editor, played with time and structure by cutting back and repeating moments to produce an unsettling, disjointed picture of reality (see glossary).

Regardless of style, a film or programme has to be assembled in some form, which means something has to be cut and pictures have to be joined together. So, behind the artistry there is a practical, physical task to be performed, and over the years the means of doing this have developed and evolved. The editing table, or bench, has been the blueprint for the film editing system that appeared afterwards and was refined over the years.

On The Bench

The standard work bench featured spools to hold the film being cut, which was shuttled forwards and backwards using a rewind mechanism. In this way scenes and shots could be found easily and then reviewed using the in-built viewer. Once the relevant frames had been found the editor would mark them with a china graph and then physically cut the film, at this stage in the proceedings a work print, using either scissor or, as was more usual in later years, a splicing machine that would also apply the adhesive tape to seal the edit. Also on the bench was a synchroniser so the pictures matched the sound, which was played out using an audio head as part of the playing mechanism.

This template paved the way for later film editing machines, whose trade names have become part of cinema language and history. The Moviola became a generic term for any editing machine, especially compact, portable devices. The original was driven by a motor and designed to work with a single reel of film and a single sound-track, although more audio heads could be added. Sound and vision could operate individually or together and were synched, with varying speeds available. An intermittent sprocket system allowed the film to run through the mechanism, and each frame could be stopped and examined on the viewer screen.

If asked to picture a film editing machine, most people would summon up an image of the Moviola, proving how synonymous with the art it was. It was easy to work with, and so was used in film schools as well as by the big studios. Unfortunately the quality of picture and audio on the Moviola was not high and the mechanism was often not gentle on the film running through it, so more sophisticated methods and systems emerged.

Motion Tabled

The flat-bed editing machine, or editing table, was based on the earlier work bench format, only much better designed and engineered. Just like Moviola and the upright edit machines, the brand names of Steenbeck and Kem have become generic terms for the flat-bed film editing system. Up to eight plates, like the European open quarter-inch tape spools, are arranged on the table, allowing a combination of pictures to be played at the same time. The picture and audio tracks move in a horizontal transport and can be played forward and rewound at higher speeds and with greater safety than the Moviola.

The Steenbeck in particular became a standard tool in cutting rooms, despite its high cost. The only challenger to the flat-bed machine from the 1960s to the late 1980s was video editing, which developed in style and technique as videotape became widely used in television and even made in-roads in film production as an alternative to work prints for picture editing. There is a direct parallel between film editing and video editing because they are both linear processes. Editors work with material from reels of film or videotapes, spooling backwards and forwards to find the required shot before moving on to another sequence later on. Everything has to be done in order, with no opportunity for random access.

Another similarity between the two methods is that picture editing is performed on a lower quality medium, a work print in the case of film and a low grade tape for video editing. The only difference is that a specific term for this was coined for video, although off-line editing applied to film as well. Picture editing on video is performed in an off-line suite and, unlike film, does not involve physical cutting of the tape. Instead shots are transferred, or dubbed, from the rushes tapes on to a new tape to create the narrative and mood. The different video tape machines being used are linked to an edit controller, which allows the editor to play in sequences on cue and perform a range of transitions, including fades and dissolves, as well as straightforward cuts.

The edit controller synchs the other machines together and marks the edit points using time code readings, which are also detailed in the EDL (edit decision list). Once the edit ▸

Flash Editing

Not a description of particularly flamboyant cutting, although it does come under that heading, this describes a sequence of short shots cut together to follow each other in quick succession. Flash editing is the faster version of those sequences at the end of film when a character runs through significant moments in his or her life, or, in this case, the film. A notable example is the end sequence of Nicolas Roeg's *Don't Look Now* (1973), when the fatally stabbed character played by Donald Sutherland recalls the main events of the last month of his life.

References

Claude Chabrol quote: *Film Yearbook*, 1988
Alan Alda quote: *American Film*, April 1981
The Complete Film Dictionary, second edition, by Ira Konigsberg, Penguin Reference 1997
The Television Handbook by Patricia Holland, Routledge 1997

Post Production: Part 3

news

New technology often sweeps all before it, but some older equipment survives the onward march and Steenbeck flatbed editing tables are a good example. The company is now based in the Netherlands, having moved from Germany in 2003, and provides spares for existing machines. Its engineers are also in the process of redesigning the electronics of the 01 series, but new products continue to appear, the most recent of which is the ST2520 flatbed rewinder.

This small unit supports two plates that are able to hold all picture and magnetic sound film, including 16, 17.5, and 35mm. Operation is controlled either by hand on the tabletop itself or using the optional ST2553 foot switch. The tabletop is resistant to solvents and can cope with up to 600m (2,000 feet) of film on 16mm spools or 1,000m of PE sound film.

The transport is fast and sensitive in both directions and can operate at very low speeds to allow inspection of film for perforations and other damage. An illuminated ground glass is used for controlling individual frames. There is an automatic stop feature for when the film ends or if it snaps. In both cases a warning buzzer sounds to alert the operator. The transport has an adjustable film tension to ensure consistent take-up.

The tabletop features a dimmer socket for an optional lamp, the ST57 (with a maximum of 75W). Another option is the ST2552 electronic universal processor counter, which features sprockets for Super 16, 17.5, and 35mm film.

The ST2520 is aimed at film archives, laboratories, projection rooms, and subtitling organisations.

► has been finalised, the process moves into an on-line suite, where a video master is assembled using footage from the high quality source tapes, with the cuts and transitions recreated using the EDL and time code. The on-line edit brings together the colour corrected version of the pictures, with finalised effects and graphics, including titles, to composite the images together into the final, finished production. The completed audio mix is also added at this stage. This is all performed by a specialist on-line editor, who is responsible for ensuring that the end product is as the Director and Picture Editor (Off-line Editor) intended, and that everything works together.

Video Star

Videotape recording appeared during the mid-1950s, and by the end of the decade was being used by broadcasters around the world to record programmes, providing a high quality replacement to tape-recording on film. There were still drawbacks, however: the tape itself was very expensive, which is why so many shows were erased to allow tapes to be used again, and editing was not a seamless process. What later would prove so simple and effective, dubbing material on to another tape to assemble a number of sequences, did not sit well with the technology of the time and would often cause the picture to roll until the signal stabilised. Editing in the black areas of a fade worked well enough, but anything more elaborate caused technical problems.

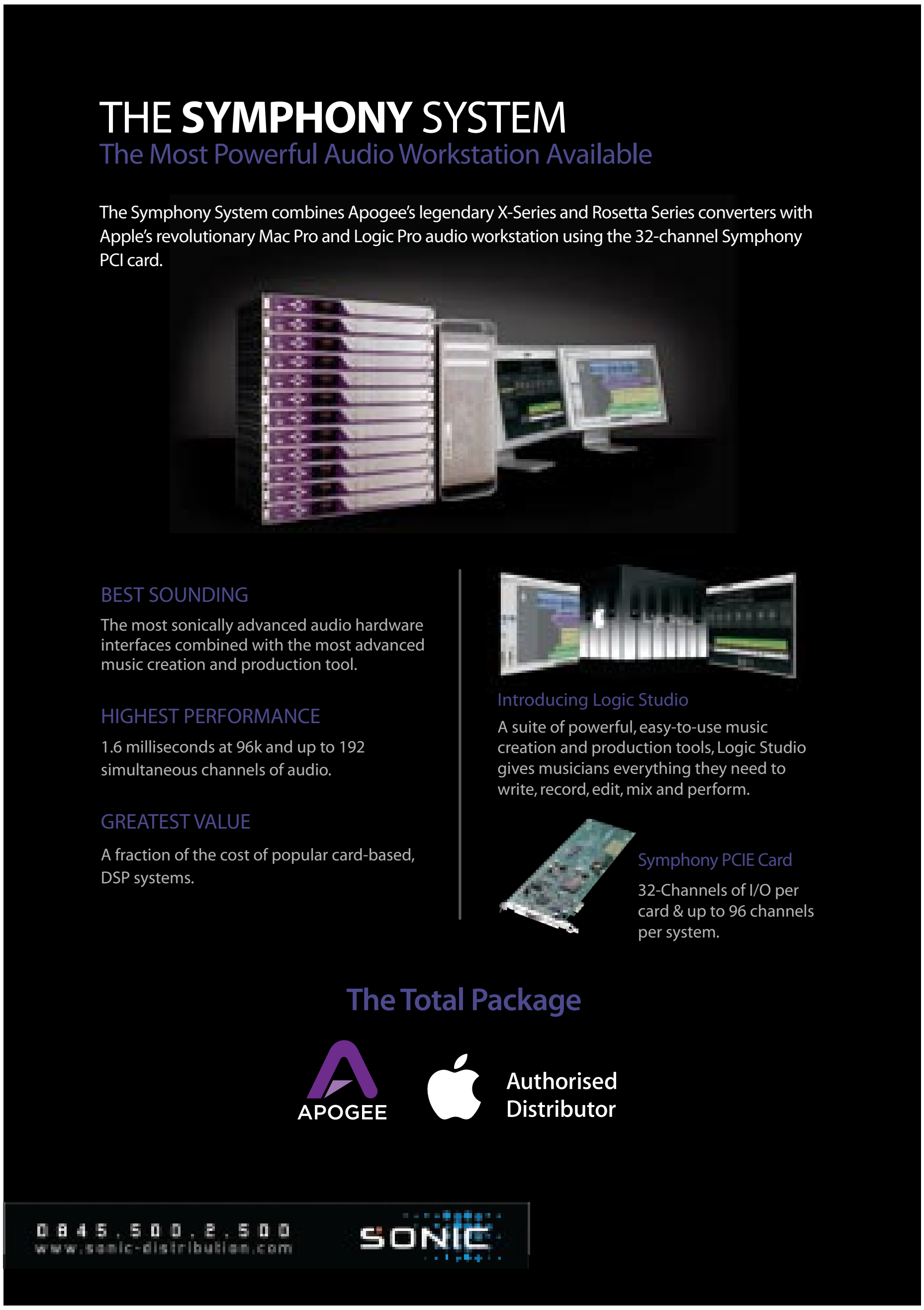
By the early to mid 1960s, full videotape editing was completely possible and practical. As VT machines and edit controllers developed, video editing established itself in television and has been used in the post-production of both high-end drama and feature films. Footage shot on film is transformed into electrical signals through a telecine machine and transferred on to videotape for editing. After the video master is completed, the finished programme or film can be printed on film for transmission or projection.

As linear processes both film and video editing take time and make trying out different ideas and compositions a time-consuming business. Video editing is seen as the more flexible of the two because time code and having several source machines available in the suite mean that different edits can be tried out, with no need to unpick splices, stick film back together and start all over again.

I Have A Dream

The dream was for a system that allowed the editor to be able to select material from anywhere on the many reels or tapes available and experiment with different edited versions, all non-destructively and with the ability to go back and start again. There was a noble attempt at this in the early 1980s; the Eddiflex off-line system, produced by the same manufacturer as the Audiflex sound editor, was among the attempts at non-linear editing, using eight VTs and a controller to give access to material.

But non-linear as we know it today did not appear until the end of the '80s, and although the revolution was slow to begin with, it has been total and will be examined next month. AM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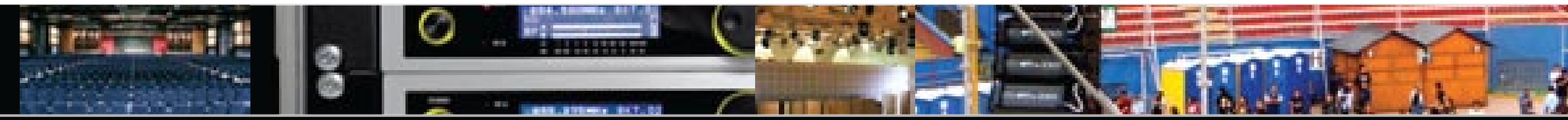
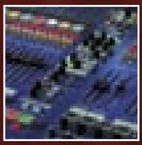


AMSR News **58**
Technology, application, and installation news from the global sound reinforcement community.

Britney Spears Live Tour **60**
With 30 trucks' worth of gear for its recent American leg, this tour boasts a massive sound system. CLIVE YOIUNG catches up with the audio engineers in charge of it all.

DPA 4099 **62**
TOM YOUNG takes a closer look at DPA's new cost-effective series of instrument microphones.

Midas **63**
Midas' XL8 console has recently received a much heralded software update. STEPHEN BENNETT delves deeper to find out how much it can do.



AMSR is the regular AUDIO MEDIA Sound Reinforcement section, aimed squarely at SR professionals across Europe. Following the *Audio Media* ethos, the emphasis will be on the product reviews and technical features written by working industry professionals that anybody in SR will find relevant and useful.

InfoComm 09 – International Communications Marketplace

As the gigantic audiovisual tradeshow looms closer we give you the lowdown on what to look forward to.

InfoComm 09, the world's largest commercial audiovisual conference and tradeshow, will be held June 14-19, 2009, in Orlando, Florida. The event expects to attract around 30,000 commercial AV professionals and technology managers, and offers more than 300 educational seminars, workshops, and labs. With the industry gearing up for another packed show, we take a look at some of the products set for showcasing.

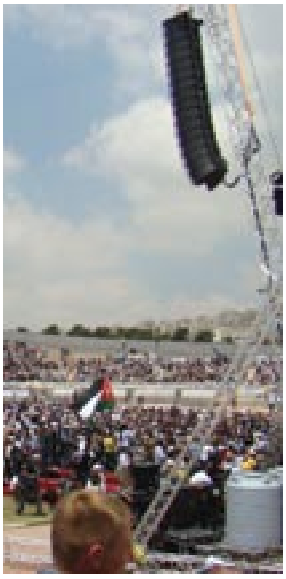
Furman is unveiling a host of new innovative power management products this year. Due for demonstration are four additions to the Prestige series, the P-2400 AR Voltage Regulator/Power Conditioner, the P-2400 IT Symmetrically Balanced Power Conditioner, the P-6900 AR E Export Voltage Regulator/Power Conditioner, and the P-2300 IT E Export Balanced Power Conditioner. The company is also showing the new F1000-UPS and F1500-UPS Programmable Uninterruptible Power Supplies that are the first battery backup solutions to feature Furman's SMP/LiFT/EVS Technologies for professional-level protection and linear AC noise filtration. **Technomad** will be presenting a new internal power backup option that provides redundancy in the event of power loss, as well as new upgrades for its PowerChiton modules that include IP and RF networking options, an internal mixer, and additional input options. **Danley** is introducing the new three-way SH-64 loudspeaker that comprises four 15-inch woofers, four 4-inch mid-frequency drivers, and a single 1.4-inch high-frequency driver in a patent-pending enclosure. **Ashley Audio** is choosing the event to showcase its new Protea 4.8SP four-input/eight-output and Protea 3.6SP three-input/six-output1RU digital signal processors. Both units offer an intuitive user interface, plus PC control software, and comprehensive DSP that includes crossover, equalisation, delay, and limiter functions.

This year sees InfoComm's 70th anniversary and is marked with the introduction of the InfoComm International Pioneers of AV Award. Randal A. Lemke, Ph.D., Executive Director, InfoComm International explains, "The InfoComm International Pioneers of AV Award will allow us to reflect on the dynamic inventors and entrepreneurs who developed technology that improved communication and created benefits that stand the test of time."

InfoComm 09
+1 800 659 7469
www.infocommshow.org

DiGiCo Tours With Kravitz

Currently supporting Lenny Kravitz on his European tour is rental company Sound Image, which has recently invested in a pair of DiGiCo's flagship SD7s to fulfill monitor and FOH duties. Kravitz is touring with a seven-piece band, and the SD7's high channel count has proved invaluable for accommodating the ever-expanding control over side fills, wedges, and in-ears. "I have four channels set aside just for Lenny's vocal," says Monitor Engineer Kevin Glendinning.
www.digico.org



Pope Gets Butterflies

Outline's Butterfly Vertical Line Array powered proceedings at a recent large mass celebrated by Pope Benedict XVI at Amman international stadium. The event attracted around 50,000 worshippers, and was accompanied by a 50-piece orchestra and a 200-strong choir. Events AVP used a system comprising a hundred Butterfly Hi-Packs and thirty-two Subtech 218 subwoofers; all powered by T-series amplifiers.

www.outlinearray.com

ADLIB Supports The Fray

ADLIB has supplied FOH control and the stage system for The Fray's recent UK and European tour. The set-up included a DigiDesign Profile console, Empirical Labs EL8-X distressors, a Dolby Lake processing system and wireless tablet remote, a Yamaha PM5D console, six Sennheiser G2 IEM mixes, five d&b M2 wedges driven by D12 amps, and a Sennheiser G2 500 series radio mic with a 935 head.

www.adlibaudio.co.uk

British Rockers Still in Demand Across the Globe

Saxon chooses Electro-Voice, and Iron Maiden votes for RCF for their recent World Tours.

Two British rock icons have been touring the world recently, proving that heavy metal fans are some of the hardiest and most loyal supporters on the planet. Saxon has been producing rock music for the last 30 years and toured last year with fellow British rockers Mötorhead. For recent and future tours, front man Biff Byford is relying exclusively upon REV wireless and the new PL Series microphones from Electro-Voice. "The REV wireless system really gives you a lot of freedom, and the guitars don't knock the microphone out of your mouth when you trip over the leads," says Byford. "The REV wireless system with the N/D767 capsule has been really great. We've had no faults at all."

Also taking their unique sound around the globe are Iron Maiden, who held a mammoth event in Peru's Estadio National Jose Diaz, Lima, that attracted more than 30,000 fans. Rental company Guillermo Riera e Iluminacion Professional EIRL chose RCF's TT+ High Definition Touring and Theatre series to do the job. A 'significant number' of RCF TTL33-A active line array modules were installed in front of the stage accompanied by two delay towers, each composed of ten TTL33-A and three TTS28-A subs.

Electro-Voice
www.electrovoice.com
RCF Audio
www.rcfaudio.com

Tannoy Decks Out the Barnsley Civic Assembly Room

The Civic Barnsley has recently been part of an ambitious regeneration project that sees the theatre benefit from a complete refurbishment. At its heart is the Assembly Room, a 350 seat capacity space for a wide range of performances that features a total of eight Tannoy VNET 15 full range speakers. Also installed is a pair of Tannoy VNET 18DR subwoofers to provide more than ample low frequency reinforcement. Tannoy has also been busy with the first sports stadium application for its VQ series. The setup for the Selland Arena in Fresno, California, consists of eight VQ NET 60 enclosures with accompanying VQ MB mid-bass units, flown 45 feet above floor level in the centre of the arena. Four VQ NET 60s were placed on the corner points of the rectangle (one each) while the other four were positioned around the centre points of each side, with each of these having a VQ NET DF down-fill mounted below the main enclosure.

Tannoy
+44 (0) 1236 420199
www.tannoy.com

NEW PRODUCT

Trantec has introduced the latest addition to its Racked'n'Ready range, the compact, rugged, and user-friendly S5.3 Cube. The 1/2U system comes ready installed with four UHF channels of Trantec S5.3, which can operate up to twelve simultaneous channels within an 11MHz window (854-865MHz). An antenna distribution unit is included, while built-in mains distribution provides power to each receiver and the ADU. Both handheld and beltpack transmitters can operate for up to 10 hours on a single AA battery.

www.trantec.co.uk

NEW INSTALLATION

Renkus-Heinz's ICONYX Digitally Steerable Array loudspeaker system has recently been installed in one of Egypt's most sophisticated conference facilities, the Maritim Sharm El Sheikh International Congress Center. Mr. Magdy Sidhom of Cairo-based system integrators TECO, which was responsible for the installation, commented, "With ICONYX we were able to focus the sound on the seating alone, and the result in architectural terms is close to perfect: the system is invisible unless you look really hard."

www.rh.com

Sound Technology To Distribute JoeCo's BlackBox

JoeCo has announced that Sound Technology will be distributing the BlackBox Recorder in the UK from June 1, onwards. Owner Joe Bull declared, "It's great that we've been able to team up with such a professional distributor as Sound Technology. Their reputation and flair for distribution is second to none, and we are very much looking forward to building the brand with them."

www.joeco.co.uk

Running Away with the Circus

Britney Spears Live Tour

Audio engineers Blake Suib and Lawrence Mignogna take a break during the US leg of Britney Spears' Circus tour to talk to CLIVE YOUNG.

Above: On her current tour, Britney Spears and her dancers eschew personal monitor systems, and hear stage mixes via eight Meyer CQ1s above the main stage.

The word 'circus' usually brings to mind images of an intimate tent show with a dozen performers and lots of sawdust. The current *The Circus Starring Britney Spears* tour, however, goes by a considerably more elaborate definition. It's no fly-by-night production – the show sports nearly 50 dancers, magicians, clowns, and acrobats, as well as a travelling staff of over 200 and 60 tonnes of equipment. The massive production, currently barnstorming through Europe, doesn't fit in a clown car either – the recently completed US leg required 30 trucks.

A few of those 18-wheelers carried an extensive audio system fielded by Solotech (Montreal), which was used daily by FOH Engineer Blake Suib and monitor man Lawrence 'Filet' Mignogna. Tackling sound for the in-the-round tour, the pair deal nightly with a wildly enthusiastic audience – the kind of crowd that routinely hits 105dB on its own before the show even starts. Throw in the additional obstacles of sound reflections for in-the-round shows, and intense scrutiny of any imperfection by both fans and nitpicking media, and it's easy to picture mixing such a show to be an invitation to a nightly headache. Instead, that's hardly the case. In fact, the two engineers were downright placid when they spoke with me during a stop at Nassau Colliseum in New York during the US leg.

Some of that calmness might be attributed to the fact that the tour isn't their first time working together, additionally, both engineers have mixed FOH and monitors in the past, instilling both with insight and a cooperative spirit between the two mix positions. It's necessary, as the in-the-round format – and use of additional B-stages – means that monitor speakers are heard by the crowd, and the PA likewise supplements the stage mixes.

Suib explained, "I've done Britney's monitors before, and in the past, she always wanted to hear the PA, so on this tour, all the stage speakers that she hears start with a mix that I generate from front of house. Of course, I can't send any of the live vocal mics or we'd have a feedback problem when I push them up, so I send the left and right mix to Filet's console and he sends that to the fills, adding whatever he feels is missing in those mixes. In the end, she's hearing a 70-percent FOH mix wherever she goes, and the audience listening to those fills is hearing a mix that resembles the front of house, as opposed to a completely separate interpretation for monitors."

That FOH mix is created on a Digidesign Venue, which Suib notes is the only console he uses these days. "I'm using my standard plug-ins, like the Bomb Factory compressors on all my vocals, but that's pretty much it," he said. "A digital console gives you more tools, but it doesn't mean you have to use them all; there's hundreds if not thousands of plug ins – and I'm using three.

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FOH Engineer Blake Suib uses Galileo, MAPP Online, and SIM3 software to tune the PA.

▸ There's tonnes that I enjoy using, but I don't need them, as they're only going to cloud the issue."

One key feature for Suib, however, is the desk's integration with Digidesign Pro Tools, allowing him to record each night's performance for use the next day as a virtual soundcheck. "I use the multi-track recordings I make to help tune the PA," said Suib.

For stage sound, Filet mixes on a DiGiCo D5 console, sending stereo mixes to seven band members who hear themselves via Aviom Pro16 personal mixers, Ultimate Ears personal monitors, and their own sub fills. "For Britney and the dancers," said Filet, "we have eight Meyer CQ1s above the main stage, pointing straight down; the B-stages are already in front of the PA, but they each get another pair of CQ1s delayed to the PA, just to fill in."

That's just the tip of the iceberg when it comes to Meyer Sound loudspeakers used on the tour, as the company's boxes assemble into a complicated PA system. With the main stage placed at centre ice, there are four separate hangs of 16 Milos, hung back-to-back to create stereo images for each half of the arena. In between the back-to-back hangs on each side is a 16-box Mica array, aimed out at the sides.

Since the show is in-the-round, instead of doing traditional front fill, there are four hangs of three M'elodies each above the main stage, and a pair of MSL4s, hung pointing down, covering a small dead zone on the floor at each end of the arena. Additionally, 32 700-HP subwoofers are placed around the main stage, B-stages, and arena corners to ensure that the low end necessary for slammin' dance music reaches every seat.

Keeping track of all those hangs is Meyer Galileo, MAPP Online and SIM3 software, which is fed data from anywhere up to 10 microphones in the audience, depending on the venue. "Sure, mics can only tell you so much, but I find that using the software gets it 80 percent there, so that you can listen and make adjustments based on what you want to hear," said Suib. "It's a far cry from having a left, a right, a stereo EQ, and an analyser with one mic, and just adjusting your EQ so your frequency response is flat. Their tools help put your artistic stamp on it in a way where you can technically see what's going on out there."

All those loudspeakers are on-hand to ensure even coverage, but when necessary, they can provide the kind of firepower you might expect, as Suib related: "Any engineer will tell you that your master volume is dictated by how loud the audience is, not how loud you want it to be, because if the audience is 105 and your mix is 102, it's going to sound like an AM radio. What I like about this PA is that I was able to turn it up 10, maybe 12dB from rehearsal levels, and the frequency response didn't change at all. That was surprising because there could be feedback problems, and that can make a nice, tight low end harder to reproduce. With this PA, it doesn't matter how much I change my master volume; it stays pretty much the same."

Another aspect of the show that's pretty much the same is Spears' ability to wow a crowd. Despite the economy, the tour has been well attended, and has garnered some of the singer's best reviews in years. With the current European leg getting shows added left and right, it seems this Circus is one with which a lot of people want to run away. AM

INFORMATION

Meyer Sound
Ⓦ www.meyersound.com

Solotech
Ⓦ www.solotech.com

Britney Spears
Ⓦ www.britneyspears.com

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DPA 4099

Performance Microphone Series

TOM YOUNG believes that DPA's 4099 Series fits a wide range of live instrument applications with rugged build quality, thoughtful design, and graceful performances.

DPA has a stellar reputation with live, recording, and broadcast professionals for capturing a natural, realistic sound, so I welcomed the opportunity to use DPA's new cost-effective 4099 Series of performance microphones, made in Denmark for an array of musical instruments. The first four models are the 4099 Guitar, 4099 Sax, 4099 Trumpet, and 4099 Violin. The 4099 Series is designed with the professional musician and his or her sound in mind; as such, it brings a more affordable high-end product to the marketplace.

Features

In itself, the 4099 microphone is a lightweight miniature super-cardioid condenser. Each 4099 in the series comes in a case incorporating a windscreen, shock mount, gooseneck, and an instrument-specific mount. Also included is a 3-pin XLR adapter, belt clip, carrying pouch, and storage case. The 4099 is designed with either of two different microphone sensitivities; normal for the guitar, sax, and violin versions which handle 142dB before clipping, and a high SPL version for trumpet that handles 152dB before clipping.

Photo credit: Ty Ford

The windscreen protects against wind noise, and the integrated shock mount virtually eliminates handling noise. The length of the gooseneck is fully adjustable to allow for the greatest flexibility in finding an instrument's sweet spot. The mounts can be adjusted to fit virtually any size instrument within their respective families, and, once fitted to an instrument, it can be taken off and on without losing the adjustments. The 3-pin XLR adapter can be used with or without the included belt clip, and is offered in two versions: the DAD4099, which is standard with the 4099 offering balanced output and an 80Hz low cut filter, or the optional DAD6001 with flat response, which is geared towards use on instruments that produce frequencies below 80Hz.

All 4099 mics are terminated with a proprietary MicroDot connector, and more than 35 connection adapters to wireless systems are available from DPA. The supplied XLR adapter allows the 4099 to work as a standard 48V phantom powered microphone. A belt clip located on the XLR connector can be removed and replaced with an enclosed ring to use directly in stage boxes or mixing consoles.

In Use

I had the opportunity to use these mics on several occasions, and my sound company – ACIR Professional – also used them on various shows. I was immediately impressed with the design of the 4099's mounting accessories. By squeezing two clamp knobs to expand the clip, you simply mount it on the instrument and release; each clamp fits the contour of its intended instrument sound source. The ability to easily adjust the height and lock the clip for remounting in the same position works very well. Importantly, the 4099 microphone mounting system is designed to be very instrument friendly; it never mars the finish of an instrument. Everyone I worked with while using the 4099 Series commented on how easily it mounts.

The gooseneck is a proper length to adjust, and flexes in all directions to achieve the desired angle to the instrument. It appears rugged and stable when adjusted, and never needed to be re-adjusted regardless of the musician's movement. The cable, like all-miniature microphone cables, is light but strain relieved properly – with normal use, it should hold up well.

The mounted windscreen is very well designed, too. I have used Countryman Isomax mics for years on strings, and the windscreens have often fallen off and created wind problems during performance if not taped onto the cable. The 4099 windscreen is extremely secure and provides exceptional elimination of popping sounds.

Using the 4099 Series on strings, trumpet and sax, I found them to be excellent sounding, similar to what I have experienced with all DPA products. They reproduce a natural sound with nice richness, clarity, and presence. On one occasion in which the 4099 was on a sax for solos and the horn section was miked with other microphones, I would have preferred to use the 4099 Series on everything, simply because of the pleasant detail it provided to the instrument. And again, when using the DPA mic next to the Countryman, I wished I had more of them for the string section.

Summary

I would definitely buy these mics. The DPA 4099 Series of microphones are high quality products that will find a wide range of use in professional live sound. According to the company, there are plans to expand the line for additional instruments and applications; that's good news. If you are looking for a well-designed product with sonic excellence, you should consider the DPA 4099 instrument microphone series.

THE REVIEWER

TOM YOUNG is a longstanding Mix Engineer for Tony Bennett and a regular contributor to *Pro Audio Review* magazine.

....

INFORMATION

£ US$599.00

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MIDAS XL8 SOFTWARE

VERSION 1.10 & OFFLINE EDITOR V1.10BETA1

Midas XL8 Software Updates

STEPHEN BENNETT explores what further benefits Midas' new software updates add to the already powerful and popular XL8.

Midas' XL8 Digital console or 'Live Performance System', as the company dubs it, was originally reviewed in Audio Media in January 2007 and has since found its way into many a live arena. The XL8 is a modular digital console with a variety of input and output options, multiple redundancies, easy to use control surface, and a digital network system for audio distribution, and can be configured to suit many varied requirements. Midas is renowned amongst live engineers for its analogue consoles, and the XL8 (and its sibling the PRO6) has put the company on a firm footing in the digital world as well. As all software-based projects are basically a 'work in progress,' Midas has recently released two software packages at the Frankfurt Musikmesse 2009 which enhance the console's functionality – software version 1.10 for the XL8 and the Offline Editor.

The upgrade software includes many enhancements including several new effects processors (stereo pitch shifter with delay, Klark Teknik SQ1 multi-channel dynamics processor, multi-band frequency-dependant stereo compressor, and a new stereo delay unit with analogue and digital modelling), mix and match I/O devices, and new stereo and surround panning options. But one of the major features of the upgrade, according to Jason Kelly, Technical Sales Manager at Midas, is the new theatre-based automation system. "It's a complete rewrite of the automation package – we've tried to come up with a new direction for our automation that is much more theatre focused and theatre friendly," he says. "The theatre market has some specific requirements, because you're dealing with a much more choreographed show than you are in the rock and roll world. There, you will generally have more 'scene based' or snapshot based automation, where not much will change during a song. In a theatre environment, you're talking about a more complex interaction between the actors and the audio. So having much more detailed control over what is happening with the audio is much more important."

The new software enables the engineer to perform more detailed editing within scenes, but also allows the engineer to add external events, such as MIDI events or general-purpose input/output (GPI) events, as well as internal events within the system. "The software easily allows you to have time offsets, for example," says Kelly. Along with the automation updates, Kelly singles out the new preset library as another major new feature of the upgrade. "This allows the operator or an engineer to build up his own library of pretty much anything on the console, whether that be effects, cues, compressors, gates, or naming sheets, for example, and store that as a preset," he says. "So any console he walks up to, he can load in his presets and everything is basically exactly how he wants it to be."

Midas' other new announcement at Frankfurt 2009, was the Offline Editor for both the PRO6 and the XL8 digital systems. It's a no cost, Mac-based program and sports a graphical representation of the real console on the computer screen. Users can then create or edit so-called 'showfiles' without having access to the desk itself, and these can then be loaded into a Midas PRO6 or XL8 via a removable USB drive. Showfiles created for PRO6 consoles will run on XL8 systems and vice versa – subject to the different system's capacity limitations. "We've been trying to get the Offline Editor going for quite a while – it's pretty much essential these days," says Kelly. "Engineers need to be able to prep shows before they actually get to the venue, and the Offline Editor allows them to speed up the process of that initial setup and, if they're in the middle of a tour, also fine tune certain things overnight and then load the updated version of the show into the console – they don't need to be in front of the desk to do any of the updates. What you see on your Editor is exactly what you see on the console's screen. The setting up of the console for a show can be extremely time consuming, and being able to do this offline saves a huge amount of time for the operator." It's also a neat way of bringing new customers to the Midas console without them having to attend a demo – as Midas' Brand Development Manager Richard Ferriday explains; "We anticipate this free software will introduce the Midas approach to digital mixing to all those engineers who haven't yet had a chance to get their hands on the hardware, as well as making it easy to pre-configure a console before a show."

"Midas has always been at the top end of the pro audio side of things and we've always tried to build the best we can – we've tried never to compromise on sound quality and the user interface – the user experience, as it were," says Kelly. "And there's a lot more to that experience than the layout of the control surface. It's how it reacts with you as you are using it, what feedback you get. These elements are just as important as the physical aspects of the console. We've tried to take that philosophy into the digital realm – and we also don't see why digital sound quality should be inferior to analogue. Traditionally, our market has been rock and roll and live touring, but we've found that since the introduction of the XL8 and PRO6, new markets have opened up for us and fixed installs has become one of those markets," says Kelly. And as fixed install obviously includes the theatre market, so the introduction of a new theatre based automation element to the already powerful and flexible XL8 is well timed.

INFORMATION

£ Midas XL8 – GB£POA
£ Software Updates – Free to Download

Ⓐ Midas HQ, Walter Nash Road, Kidderminster, Worcs, DY11 7HJ
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Ⓕ +44 (0) 1562 745371
Ⓦ www.midasconsoles.com

THE REVIEWER

STEPHEN BENNETT has been involved in music production for over 25 years. Now based in the wilds of rural Sweden, he runs Chaos Studios and writes books and articles on music technology. He's also a film-maker with several music videos and short films to his credit. www.stephenjamesbennett.co.uk

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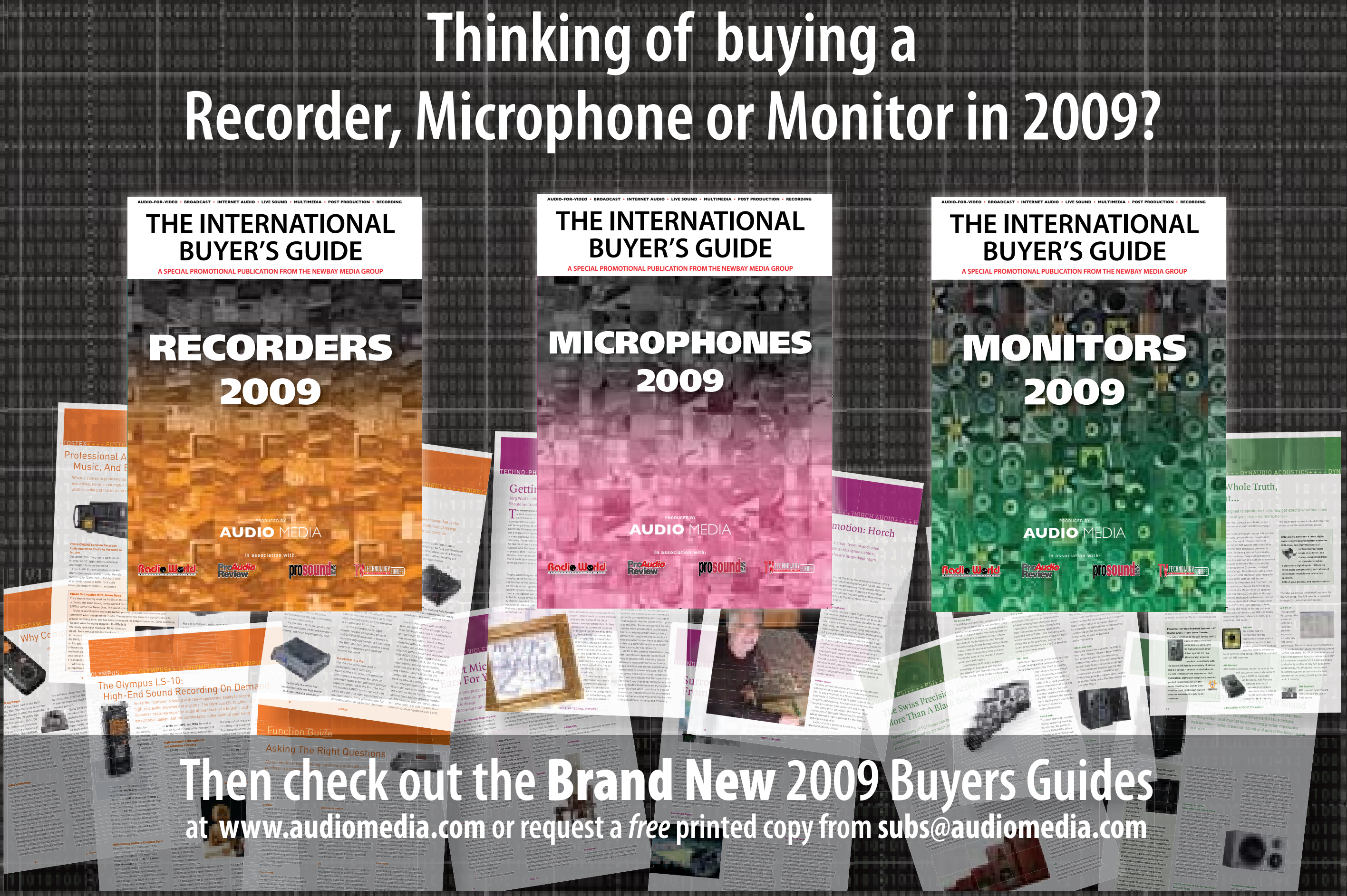
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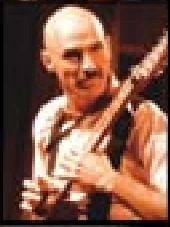

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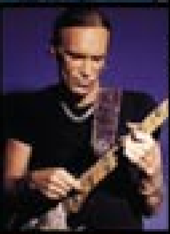

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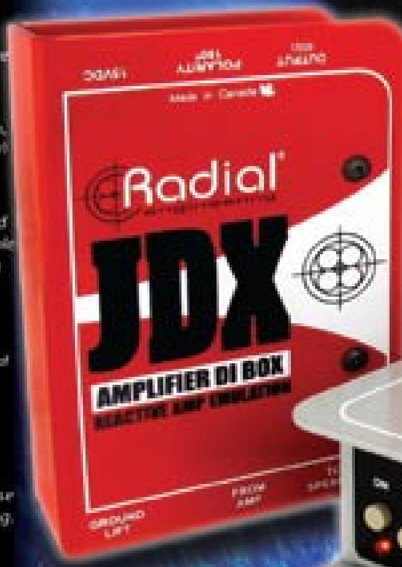

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MICROPHONES 2009

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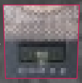

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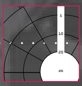

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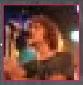

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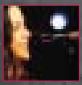

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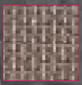

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Welcome to *Microphones 2009*, an International Buyer's Guide. We've scoured the ever-widening market of professional microphone products for your convenience, and thrown in a few informative and hopefully thought provoking articles from experts in the field.

Now updated and refreshed, this guide is a collection of promotional articles looking at 11 of the world's leading microphone manufacturers and their product ranges. Inside you'll find the stories behind the gear – the ethos' and design ethics that go into producing one of the core components in professional audio – and details of the products themselves. In addition, we've collated a massive directory of mic manufacturers, and commissioned three articles around the subject of microphone technology and technique for the audio pro.

Whatever your field of work, the quality of your product depends heavily on the quality and method of acquisition. This is why microphones are so important, and why this genre of audio gear probably generates more passion than any other. While the range of basic principals in microphone technology is relatively small, the variations on these themes are incredibly numerous – we've listed over 80 manufacturers in our directory, from all over the world, most offering choice across several transducer or electronic approaches.

You might be a film or drama location recordist, a music studio engineer, a Foley editor, a radio journalist, a member of an ENG crew, a live sound engineer – any, in fact, of the hundreds of very specialised roles that require not only a theoretical grounding in microphone technology, but also intimate knowledge of the 'art' of microphone practise, placement, and choice. You might even just be starting to build your microphone stock and need a place to start. Are you aware of recent advances in all areas of microphone technology? Are you familiar with a handful of high-profile manufacturers, but would like a greater breadth of awareness when it comes to the 'alternatives'? Whatever your needs, *Microphones 2009* should be able to help. It should be a place to begin your search.

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From Fossil To Future: An Evolution In Microphones

Alistair McGhee considers what old-time and brand-shiny-new microphones would gain pride of place in his microphone cabinet. And it's a well stocked cabinet at that.

Evolution is a funny business. Not funny 'haha' you understand, but funny peculiar. I remember well the sudden chill in a conversation with an expert American palaeontologist when I asked him why in the vigorous debates with his Creationist opponents he didn't turn up with a 'bucket of fossils of intermediary forms'. The fact is that in many (though by no means all) cases it's harder to map the steady march of the accumulated results of variation and natural selection than you might think. Consider the world of pro-audio. In some areas the rate of technological change is staggering, though to be fair probably hard to appreciate if you were only dealing with the fossil remains of our high tech toys. The power of digital audio workstations advances almost daily, and whole new species of audio technology arise overnight. Take solid state hand held recorders. Ten years ago virtually nothing, now a vibrant and ever expanding ecosystem.

Not Extinct Yet

Which brings me to the thorny subject of microphones. Here evolutionary rates are as baffling as anything buried in ancient shale. New body plans (try the Black Hole from Latvian mic makers JZ, or the line array KEM 970 from Gefell) are appearing while ancient species such as the Shure SM 58 and AKG 414 still thrive. When the 'extinct' Coelecanth was discovered in 1938, the headlines boldly splashed 'living fossil' across a thousand miles of newsprint. The mic equivalent is probably the Coles commentators lip mic, it still makes perfect evolutionary sense if you want to hear someone over the racket of a football crowd. That's not to say it hasn't changed, and if you have 10 minutes I'll tell you my L2 story some time.

Why is there this wildly mixed economy? How can designs well established forty years ago and more maintain a slice of the market when all around them new products and designs rise and fall? As we've invented the DSP emulator, why hasn't the range of microphones available collapsed into one or two dominant models that out-compete all others? Well, the reasons are manifold – partly it's a physics and physicality thing. Some mics need to be small – the Sony ECM 50 niche has seen progressively smaller personal mics, and you now have a choice between virtually all your favourite traditional manufacturers: Sony, DPA, AKG, Beyer, Sennheiser. Is it me, or has this been an area not put under pressure from cheap copies to date? The point is the best gun mic in the world is no good if you want to pin it to someone's tie. And of course the most neutral mic in the world is useless if it can't take a beating on the road and your living happens to be on the road. But even in the studio where everything is under control, there seems to be that strange mix of the vintage German classic, say Neumann U47 alongside the gradually evolved AKG C414, or the new boy fresh off the SE Electronic designer's CAD screen.

The Cost Of Reputation

Then there's the price point element. Snapping at the heels of the established European brands, Audio Technica has a mic for every occasion, Røde is building a tidy reputation, and SE is a powerful presence. And then you have products competing at the high end – in effect declaring we do the same old thing but we do it better. Here you find Brauner, JZ, Charteroak, ADK, and many more.

But when you've considered the different utilitarian pressures – the engineering solutions, the pricing, and performance, you're still left with huge personal factors. Traditional loyalty – "we've been using these mics for 20 years, and we know and trust the designs and the reliability" – same again please. Or peer pressure – all of a sudden everyone has an Earthworks omni or Sanken gun mic: "I must have one in my kit". And actually fashion in and of itself is no reason to reject something. If 70% of live engineers have an SM 58, then there might just be a reason for that. But beyond even these motivations, the mic buying heart has reasons the head-wallet axis knows nothing of.

A Glossy Front

Who can resist the lure of a nicely finished, high performance electro acoustic instrument that just might turn me into recording genius. Maybe simply by putting a Peluso or a Neumann digital in front of the talent I will be turned from jobbing engineer to Master of the Sound Universe. That's partly why a company like Violet will always attract my attention – make a mic that cries out "look at me, I know what I'm doing", and I'll be lingering long over the glossy brochure. Which leads me to the conceit of this rather rambling editorial.

In The Cabinet

When I first joined the BBC, one of the genuine joys was opening a well-stocked mic cupboard, the contrast between the brushed metallic finish of the mics against the green baize of the individual compartments brought a smile to my face. And if I ruled the world or even just won the lottery, I think I'd find an old BBC mic cupboard, polish up the mahogany veneer, and fill it with enough mics to last me a lifetime.

On the top shelf out of the reach of mere children we have the big boys: side address large diaphragm condensers. The first three are easy: Neumann U87, AKG 414, and Beyerdynamic MC840. Simple black classic.

This selection is open to the obvious criticism that all these manufacturers have other newer, sexier, smaller, etc, products. And that of course is true. But I've never heard anyone say "Oh xxxx, all I've got to work with is a U87." No sir.

But this area of the market has been attacked at both ends, resulting in some very nice-to-have alternatives. Sony offers the C-38B, and even the valve-based C800GPAC. I can't say I've ever seen one of these ten thousand dollar mics, but I want one, obviously. Back to Germany for two very desirable brands, Brauner and Gefell. Brauner is a newish kid on the block, aiming almost entirely at this niche. Gefell on the other hand… well check out its website for a full history – it's been continuously making mics for eighty odd years, and is much underrated. And what about that last little slot, what shall we put in there? A classic U47 would be my choice, but despite the fact it's the best vocal mic I've ever heard, vintage mics are a tricky business. And probably sample variation over this time and the unguessed indignities of 40 years make buying one a real risk. Don't let me stop you – I'm going to slip in a Wunder CM7-GT, or for a bit less cash a Gefell UM 92.1 S. M7 capsule and valve electronics – yeah baby.

At the more cost conscious end a similar battle rages. Audio Technica has a range of solutions starting with the ever-popular AT4033. Violet/Blue represents Europe here, and for a more easterly (or should that be southerly) approach, the Rode NT series and SE electronics command a lot of respect. We have some SE mics in our new Hoddinott Hall, home of the National Orchestra of Wales, and I regularly use Rode's stereo mic. One of the interesting things about Rode and SE is the breadth of their ambition, check out their whole range.

A Box Of Pencils

Down a shelf to the 'pencil' mics. Our serious music engineers have sworn by Schoeps and DPA for years now; if you looked in Huw Thomas's (Senior Orchestral Music Balancer) kit, that's what is bringing home the bacon. Sennheiser's MKH series are a popular choice for film and TV sound recordists, and they're not out of place in the concert hall either. I'm very fond of the Neumann KM184 (and brethren) series – and there's digital there if you want it, and every doo-dah under the sun. For inexpensive flexibility the AKG Blueline series is hard to beat; a great range of capsules (including personals) and a great bayonet mounting system. The Audio Technica 4041 is very popular and deserves a mention, while a bit more aspirational are the products from Earthworks. Its omnis have a great reputation and come in matched pairs in a cherry wood case. Sweet – out of the case into the cupboard.

A quick whip round gun mics: Sennheiser 416, DPA 4017, and something from Sanken. Sadly lots of interesting Sanken mics are "not available in the EU". But I want them. Oh yes, and a Schoeps CMIT 5U in that lovely blue finish. Strapped for cash – head for AT. I haven't got the space to eulogise the 416 and 4017. Honestly.

Going Live

Live vocal mics. SM58, SM58, SM58. Every week Cowon or Creative come up with an iPod killer. Pass me Apple's financial results for last year. iPod alive and well. Same with the 58. Competitors come and go but it rocks. Flesh the collection out with the Audix OM series, and Beyer M88TG. Electrovoice is a long time player in this field, and AT, Beyer, and Sennheiser offer extended choice.

As an aspirational mic – the Gefell MD 100.

Live vocal mics condenser. In brief, the Neumann KMS 105 – love it. Aspiration: Schoeps CMH 6 – seems to be designed by Gerry Anderson for use in Thunderbirds. But it's a Schoeps, so it's bound to be good. And a Shure KMS 9. Why? Because it's there.

I've only just realised I'm never going to fit it all in, the world of microphones is just too big. So how about ribbon mics to finish? We begin with a trio of British mics; Coles 4038 – please stand in the presence of greatness (and make sure you're ready for the 300Ω business). Coles 4104 commentators mic – keep standing. Coles 4040 – never seen one, but I think it's a 4038 with new magnet technology – what's not to like? You may be seated. Beyer M130 and M160, great ribbons at a reasonable price. Aspirational – Royer, AEA, and now SE electronics.

Bottom Shelf

Oh hang on, there's just a little room left on the bottom shelf. Everything made by Pearl in Sweden, Shure lazy mic, an AKG 451, and a Calrec for old times' sake, apple and biscuit, a Soundfield, AT 892 headworn, Electrovoice RE50 and RE20, Neumann BCM 104, Beyer CK900 and… now it's getting hard to close the door. Better leave it there.

Dedicated to the memory of Roger Derry. His expertise, not least in the realm of microphones, so lightly worn and freely shared is sorely missed.

Getting Techno-Physical

Jörg Wuttke offers his take on attitudes to microphone selection, testing, and placement. Should we trust the heart, or the mind?

The artistic viewpoint sees the microphone almost as a musical instrument – an extra member of the orchestra or an accompanist to a singer. With such a view it can be very difficult to judge the microphone objectively. Elements of fashion, nostalgia, and a degree of sympathetic magic can lead to a very subjective choice that owes little to rationality. The techno-physical approach is the reverse of this – a wholly reasoned and objective view that requires a basic knowledge of physics. Within certain restrictions, the choice of microphone will produce a sound that is predictable and can be tailored with some precision to what is required.

Physics Versus Emotion

Despite what many would regard as the benefits of the techno-physical approach, a great deal of the literature and advice on the use of microphones is based on apparently non-technical considerations. Often a microphone will be listed as best suited for vocals simply because it has, by chance, sounded pleasant on a previous occasion or looks similar in shape to one that was used in that way.

Given that the majority of users of microphones have very little engineering background and are far more familiar with the world of art, this should not be surprising. They have no other guidelines to follow.

Art and emotion do, without question, have a central position within music but, equally, the key to the successful recording of it is a technical understanding of the devices that need to be used. Trying to muddle up both approaches in some haphazard fashion is no help either.

That leads to quaint notions, such as that tube (valve) microphones give 'a warm sound' because they become physically warm in use – or that large microphones yield a bigger 'sound image' (whatever that means) than smaller designs. This latter notion undoubtedly stems from folklore that has been fostered by those with vested interests in the promotion of large-diaphragm microphones. In purely physical terms there is, of course, no requirement for the diaphragm to be large in order to be able to respond to low frequencies.

Making Comparisons

Every innovation needs to be tested and proven – which leads us to the awkward problem that some of the steps forward are very small ones. To hear them requires controlled listening under good conditions and, above all, with a proper reference; but all too frequently a new product or design is assayed in splendid isolation. Expectation or fervent belief that it must be better strains judgement, and within a short time highly coloured opinions are circulating and a myth is built which is as baseless as it is hard to eradicate.

There really is no alternative to properly controlled listening tests if audio devices are to be compared in an impartial way. AB tests are limited to distinguishing the better of two options, but they alone can reveal what differences there are and if, indeed, they actually exist. And 'properly controlled' should not be skimmed over lightly – for instance, adjusting levels needs to be carried out with great precision since, with signals of equally high quality, even an almost imperceptibly higher level on one will skew judgements in favour of it. Such experimental pernicketiness has to be refined even to the extent of intentionally adding a small imbalance of levels but on a reciprocal basis where, say, microphones have different frequency responses that affect perceived loudness.

Microphones for a Particular Use?

Although it is extremely common to be told that such and such a microphone is good for, say, violins, this poses the question of why it should be considered to be so. Should a microphone be chosen purely on the grounds of what the sound source is? We don't, after all, have more than one set of ears to hear everything, and common sense dictates that if the microphone is an ideal one it transforms a sound into a perfectly corresponding electrical signal. That suggests that the closer a microphone is to the ideal, the more neutral it sounds, and the more universally it can be used. There is certainly a wide variety of very different top-quality microphones, but it would be wiser to see these as physically suited to a particular application rather than a particular sound source.

As far as the 'perfect' microphone goes, omni-directional capacitor (condenser) designs approach the ideal very closely. Where you want to favour sound from a single direction and exclude neighbouring instruments or unwanted sound, then of course you need a directional microphone which will be a little further from perfection. For a start, any directional microphone (such as a cardioid) will demonstrate the so-called proximity effect when used close to a sound source. Low frequencies will be accentuated. For a microphone that will commonly be used in this situation a compensating frequency

response can be designed into the capsule. Such a microphone can therefore be described correctly as suitable for close use – its designed task – but not specifically for any one instrument.

Of course it would be possible to choose a far from ideal microphone that would produce a particular characteristic variation to the sound – more accurately termed a 'distortion' of it – but this seems a perverse approach if you are listening to a Stradivarius. Of course, if the microphone is less than perfect because it cannot handle high frequencies, it might still be adequate for use with a bass drum (though this is not the same thing as saying that it is intended for that purpose).

Certain distortions produced by non-ideal microphones may not, in themselves, be unattractive, but it is better to achieve these effects by starting with a near-perfect microphone and using equalisers and similar devices since this approach allows sonic changes to be measured and adjusted precisely. The good cook always prefers to start with a dish that is unseasoned, and then to add salt and spices for subtlety and brilliance, rather than to tame one which comes to them with rank and unidentifiable flavours.

Placing the Microphone

If the choice of a microphone requires some understanding, then placing it needs at least twice the thought. Not only is its position relative to the instrument or sound source critical, but also its position within the room or acoustic environment. When it comes to stereophonic recordings (we will stick to the simple, classic type with just two microphones) then two additional factors have to be considered – the precision of localisation and the sense of spaciousness. If equations with four unknowns are frightening, then the techno-physical approach does provide a steadying hand. Michael Williams has determined a set of laws that determine the angle and distance between microphones as a function of the directivity pattern and the width of the sound source in order to give accurate localisation.

The Use of Extremes

Another helping hand in coping with complex conditions is to examine extreme positions and then work 'inwards' towards a more useful middle position.

For microphones, there are three pairs of opposites that are useful to analyse:

1. The soundfield.

The direct sound component of a soundfield exists close to the sound source. It arrives before any other sound and from one single direction. Conversely, diffuse or reverberant sound is the result of all the many reflections that exist in a room or sound space. It has no preferred direction of propagation – unlike simple reflections or echoes – and no defined phase. Direct sound gives clarity and intelligibility, diffuse sound gives a sense of space and context.

2. The working principle.

For the principles of operation of a microphone, the extremes are that of the pressure-operated transducer and the pressure-gradient type (the pressure-gradient is proportional to the velocity). The pressure-operated transducer senses sound pressure at a single point and is thus inherently omni-directional. Pressure-gradient capsules sense the difference in sound pressure at two points and are inherently bi-directional (figure-of-eight). All other directivity patterns, such as cardioids, can be analysed in theory (and sometimes even in practice) as combinations of the omni and figure-of-eight patterns – except for the special cases involving parabolic reflectors or interference tubes (shotgun microphones).

3. Fundamental stereo principles using differences of level or time.

The last pair of extremes involves the relationship of stereophonic microphone pairs – which we will conveniently define as a 'main microphone', in that the pair provides the essential spatial information for a stereo 'stage' irrespective of any additional spot microphones. One extreme places both capsules very close together, perhaps even in the same housing. Usually one capsule is vertically above the other and the separation is effectively zero in terms of the wavelength of sound. The capsules are physically 'coincident', and since the sound arrives at both simultaneously, they are also coincident in the time domain.

The contrasting extreme is A/B where the capsules are spread far apart. 'Small A/B' indicates distances of 40-80cm, 'Large A/B' is even more extreme with distances of some metres. In terms of both position and time, they are far from coincident. Coincident stereo techniques carry the benefit of excellent localization, but at the cost of a centre image that is over-emphasised since much of the sound is recorded in mono. This will also explain the feeling of a lack of spaciousness. The percentage is dependent on the directivity of the capsules, but is 50% for cardioids – you remember, a cardioid can be resolved into a combination of a figure-of-eight and an omni, and two onmis in the same spot capture the same signal.

The Author

Jörg Wuttke studied electronics and telecommunications at Karlsruhe University, specialising in acoustics. He joined Schoeps GmbH as a Research Engineer in 1970, became its Chief Engineer in 1972, and is now its Technical Director. He has been a member of the AES DIN Standards Committee on Microphones and Headphones since 1972. He maintains an avid interest in listening to music and recording live concerts.

Conversely the spaced A/B technique carries an enormous, if somewhat artificial, sense of spaciousness (Stanley Lipshitz calls it 'phasiness') that coincident techniques cannot match (except Blumlein). The reason is that differences in arrival time at the widely spaced microphones translate to differences in phase in the stereo output, and thus 50% of the direct sound is transmitted out-of phase.

Soundfields and the operating principles of microphones rarely raise many passions, but the spacing of stereo microphones generates intense debate.

Positions become extremist rather than simply extreme, and the techniques become viewed as radically different philosophies rather than points on a continuum. We can analyse the techniques scientifically, but the choice does come down to personal taste – even perhaps, emotion – in the end.

***Audio Media* wishes to thank Jörg Wuttke of Schoeps, Rycote, and Chris Woolf (*The Microphone Data Book*) for their permissions to use this article.**

w www.schoeps.de
w www.rycote.com
w www.microphone-data.com

Audio-Technica – The Drive for Innovation, Quality, and Consistency

The youngest of the world's 'big four' microphone brands, Audio-Technica has employed design innovation and advanced manufacturing to consistently break the price/performance barrier with leading products for studio, broadcast, and live production applications.

As a world leader in the design and manufacture of high performance microphones and wireless microphone systems, Audio-Technica has developed market leading product ranges in the three principal professional audio applications – music recording, broadcast production, and live production. In each of these areas Audio-Technica has developed product ranges that have raised the performance bar and established a reputation with industry professionals for design, engineering, and build manufacturing excellence that is second to none.

It's an engineering and business philosophy that originates with the company's inception in 1962 when founder Mr. Hideo Matsushita introduced a moving-magnet-type stereo phonograph cartridge. The company went on to design and produce phono cartridges and tone arms, both under its own brand and for others, including the legendary NHK broadcast organisation. The same high precision design and engineering techniques that made the company's various cartridge designs so successful were also applied to the manufacture of microphone and headphone products throughout the 1970s and 1980s, earning the brand prestigious status among audio professionals.

In The Studio

It was with the introduction of the AT4033 in 1992 that the company established a leading position in the studio recording market. The AT4033 was the first ever high performance large studio condenser microphone priced at under $1,000; anticipating what today is a highly competitive market sector for affordable high performance studio recording microphones.

Exploiting the very latest design, engineering, and production techniques, the AT4033 provided performance from a back electret design that rivalled famous studio condenser models several times more expensive. Among the many design innovations to enable such performance was a specially contoured, vapour-deposited diaphragm, just two microns thick (compared with 10 microns for most large diaphragm condensers). This ensured very high-resolution signal reproduction. Coupled with low noise, symmetrical, transformerless circuitry, this produced an exceptional transient response and low distortion output. Special accelerated diaphragm aging methods ensured performance remained consistent over time, which with the specially designed damping and suspension provided for a more linear response over a wide frequency range, even at high SPLs.

audio-technica

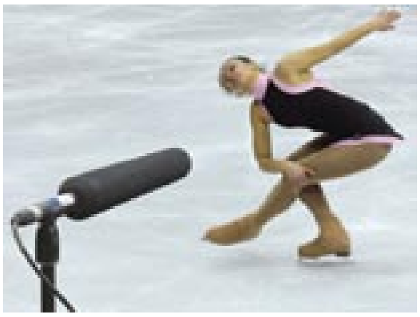
Metallica FOH engineer 'Big' Mick Hughes employs an array of Audio-Technica microphones on stage with the world's biggest metal band.

Modern production methods enabled a level of consistency that ensured the identical performance of every microphone; with no necessity to produce the microphones in 'matched pairs' for stereo recording.

Selling in thousands, the success of the AT4033 established the company's reputation as a high-end studio microphone manufacturer and spawned the 40 Series large diaphragm condenser range. All models in the 40 series adhere to the same paradigm of high performance and value for money, and as testimony to their quality, since the start of 2008 also come with the company's Lifetime Warranty.

Two new models in the 40 Series – the AT4021 and AT4022 – are introduced for 2009. Upholding the exacting standards of design and construction for which Audio-Technica is known, the new condenser models offer high SPL handling and wide dynamic range. The cardioid AT4021 and omni-directional AT4022 deliver an extended frequency response and low-self noise, ideal for today's demanding digital recording situations.

The Pigeon Detectives – on tour with a full complement of Audio-Technica microphones for vocals and backline.



Audio-Technica microphones are relied on for the broadcast of the biggest international sporting events.

Modern day classics of the recording world, the 40 Series microphones are lauded by internationally renowned engineers and producers like Phil Ramone, Joe Chiccarelli, Frank Filipetti, Nathaniel Kunkel, and David Reitzas. These are among the world's most successful and best selling studio microphones today.

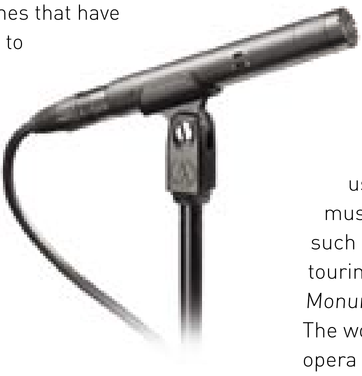
For Broadcast

In the broadcast industry, Audio-Technica is a brand that has become synonymous with high performance location recording microphones that have enabled programme makers to achieve an ever-greater sense of reality in the transmission of major outside broadcast events. In particular the company has been associated with the broadcast of international sporting competitions. The official broadcast productions of the Summer Games in Atlanta City, Sydney, and Athens, the Winter Games in Salt Lake City, and the more recent 2008 Beijing Games, have featured literally thousands of Audio-Technica microphones. In particular, the company's innovative shotgun designs have enabled greater capture of close up audio in games and competitions. The AT815ST stereo shotgun was designed specifically for the Sydney Games in 2000, and has been a fixture of broadcast coverage of such events since. New for 2009, the BP4071 and BP4073 microphones are tailored to the needs of critical broadcast applications with excellent signal-to-noise ratios and RFI-immunity. Innovative acoustic design also ensures that the new models offer levels of directivity comparable to mics up to 50% longer, and as such deliver unequalled performance in a compact package.

On Stage

In recent years Audio-Technica has won devotees among artists and sound engineers alike, for Artist Elite Series performance stage microphones, in both wired and wireless form. With users and endorsees as musically diverse as The Pigeon Detectives, Alesha Dixon, Russell Watson, Rush, Linkin Park, and Metallica, AE Series handheld models – both condenser and dynamic – are famed for their sound quality. When partnered with Audio-Technica's 5000 and 4000 Series wireless technology, transmission quality is such that engineers as seasoned as Dick Rabel have gone on record as saying that there is "remarkably little difference" between wired and wireless models with the same capsule.

The high signal to noise and low signal compression performance of Audio-Technica's 5000 and 4000 wireless technology lends these systems for use on the most critical musical productions, such as the massive world touring opera production, *Aida Monumental Opera On Fire*. The world's largest touring opera production, Aida carries a 46-channel 5000 Series wireless system.



New 40 Series AT4022 studio condenser mic.

On backline too, Audio-Technica is a de facto standard for many world-class sound engineers, often exclusively. Engineers like 'Big' Mick Hughes (Metallica, Def Leppard, Slipknot), Jim Warren (Crowded House), Dave Bracey (Robbie Williams), Dick Rabel (Russell Watson, Katherine Jenkins), Mark Jones (Embrace), and Andy Hawkins (Pigeon Detectives). For these and many others, models like the AE2500 dual element design, the AE3000, AT4050, AT4041, and the ATM350 are essential tools of the trade. These live production series are now joined by the re-engineered Artist Series, offering unrivalled performance at competitive price points: they are already making an impression in the market, with singers including Jodie Jones using the ATM710 condenser exclusively on stage, and other models earning a place on backline rosters.

Audio-Technica's hard-working Artist and Artist Elite wired microphones are now covered by the company's Lifetime Warranty.

Audio-Technica has extended its unique 'lifetime warranty' – offered on top of the 40 Series studio condenser range – to include Artist Elite and Artist Series microphones in 2009. The extended warranty is offered free of charge and is applicable on all wired Artist Elite and Artist Series microphones sold by authorised resellers in EMEA from May 1, 2009.

The warranty reflects the reliability and engineering quality across the three ranges. Users of Audio-Technica microphones in live production environments can now enjoy the same peace of mind as their studio counterparts.

audio-technica
always listening

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Audix Microphones: Consistent Innovation

Cliff Castle, Co-Founder of Audix Microphones, salutes the Beach Boys 25th Year Anniversary Special Tour in 1986

The following is a snapshot interview with Cliff Castle – co-founder of Audix.

How did Audix get its start?
Audix had its humble beginnings back in 1984 in Redwood City, California in a suite of offices totaling about 300 square feet! Initially, we were set up as the distribution arm for Audix Japan, a microphone company that was manufacturing strictly for its domestic market. The microphones were good, but not good enough to compete with the industry standards of the day. One thing led to another and we started redesigning the microphones and improving the performance characteristics. The first two years were pretty painful but, by 1986, we introduced our first high-level vocal performance mic, the OM 1, which received very positive magazine reviews and made its way into high profile users including the Beach Boys, one of my all time favorite groups.

Alanis Morissette on her Audix OM5

The OM series vocal mics are more popular today than ever. How has Audix maintained this success?

We developed our own capsule design that featured 'VLM' technology, which stands for 'Very Low Mass'. These lightweight diaphragms are able to react more quickly to incoming sound waves, which result in a more natural, accurate sound with better transient response. This diaphragm design, along with the hypercardioid design of the polar pattern, provided unprecedented gain before feedback, still unparalleled to this day. Artist and engineer support has also helped. We happened to be paying attention to the 'grunge' groups emerging out of the Northwest in the early 1990s. I demoed the OM7 to Dave Rat (Rat Sound) who was providing sound for two unknown groups at the time – Pearl Jam and Red Hot Chilli Peppers. He flipped out when he heard the gain before feedback of the OM7 in the monitors. He thought there was some type of voodoo going on. Before we knew it, the OM7 became the microphone of choice for just about all of the groups in the grunge scene – and fortunately for us, the groups hit the mainstream. By 1995, another of our mics, the OM5, made its way into the hands of *The Tonight Show*, *The Late Show* and MTV *Unplugged*, as well as many artists such as Alanis Morissette, Bonnie Raitt, Bruce Springsteen, and Crosby, Stills, and Nash – all of whom continue to use their Audix mics to this day.

Audix VX5 Condenser Mic

Audix is now established as a leading manufacturer in drum and percussion mics – how did that come about?
Being a musician helps. I realised that drummers and percussionists, the guys who provide the heartbeat for any musical content, were being neglected as far as mics specifically designed for their applications. The Sennheiser 421, which we recognised as a great mic, had become the standard percussion mic for pros. The downside to that mic is that it's fairly big, cumbersome, and expensive. So we came up with the D series – application-specific mics for drums. Machined at Audix out of high-grade aluminum bars, these mics are compact, accurate, able to handle high SPLs, and cost effective. After a few years, they gained widespread recognition, and with the most recent addition of the D6 and the i5, these mics have become really good, dependable tools for a wide variety of instrument needs.

Audix also continues to develop interesting condenser mics. Any tricks up your sleeve that we should be on the lookout for?
You already know about the SCX25A, an improved version of our formidable large-diaphragm condenser mic that is ideal for acoustic instruments, overheads, and vocals. The Micros™ are the world's smallest standalone condenser microphones with an integrated

Audix Leads the Pack in Percussion Mics

With the introduction of the D-series dynamics in 1993, Audix created a new category of microphones specific to drums and percussion. Shortly after, Audix further expanded this concept to include prepackaged sets of microphones in various configurations. In 2000, Audix created the drum mic kit. It was an instant success, and many other brands followed suit soon after.

With the introduction of the D6 and the i5, Audix configured the DP5A, the DP7, and the DP-Elite8 drum mic packages. All of the kits feature the best of the best, and provide high performance and excellent value. The DP7 was bestowed the prestigious MIPA international award of 'Best Drum Microphones' of 2007, an award voted on by 107 magazines representing 25 countries.

The heart of the DP5A mic package (MSRP of US$1,149) is the popular D6 dynamic microphone for kick drum, characterised with full, robust sound, with clarity and attack. For snare drum, it's the i5, a perfect complement to the D6. The i5 not only provides clear and natural sound reproduction, it is extremely durable and capable of withstanding the occasional and unavoidable 'stick hit' during the course of a gig. For rack toms, there are two D2 dynamic microphones. The D2, described as the 'king of toms', will capture all the subtleties and overtones of 8–12" toms. For floor tom, there is the D4, unrivalled in its ability to recreate the extended response of a low frequency drum with extreme accuracy and detail. Additionally, there are four D-Vice spring-tensioned rim mounting clips which eliminate the need for mic stands for snare and toms.

The DP7 (MSRP of US$1,747) includes the same mics as in the DP5A, with the addition of two ADX51 'pencil-style' cardioid condenser microphones for overheads. The ADX51, with switches for pad and roll-off, captures the cymbals and ambient sound of the full kit, without picking up too much bleed from the other instruments on stage.

For those artists and engineers looking for the ultimate miking solution, there is the DP-Elite8. This package is configured with the same basic five microphones found in the DP5A, with the addition of two SCX1-C cardioid condenser microphones for overheads and an SCX1-HC hypercardioid for high hat. The DP-Elite8 is priced at an MSRP of US$2,569. All mic packages include a sturdy aluminum carrying case.

DP7 is our top selling drum pack and will outfit any five piece drum kit.

mic preamp. The 50-inch carbon fibre MicroBoom™ incorporates the Micros™ in a way that makes it the ideal solution for choir miking without having to hang mics from the ceiling. Also, keep an eye out for the VX5 handheld condenser vocal mic with pad and rolloff; it is bound for stardom!

The Micros™ – Smaller is Better

Audix has enhanced the award winning Micros™ Series, the world's smallest condenser microphones with integrated preamp and detachable cable. The M1244B, M1250B, and M1255B measure slightly over two inches long with a weight of only .6 ounces. They feature a variety of polar pattern options, very low noise circuitry, and complete immunity to RF. In addition, all electronics are built-in to the microphone, so no external phantom power adapters are required. The Micros™ are a great low profile solution for portable overhead miking of choirs and plays, corporate presentations, discreet instrument miking for symphony, orchestra, and other live sound applications where placement and sound are critical.

M1255B shown here with hanger for overhead applications. The MicrosTM Series microphones are only 54 mm long and fit in the palm of your hand.

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Blue.
The Microphone Company of Today.

Blue Microphones is commonly referenced as 'the microphone company of today' because of its unique philosophy: to meld the heritage of the past with current cutting-edge technology, leading to continuous innovation in the field of audio recording.

The Flagship Bottle Series

Designed for the most discerning recordists, the Bottle Series (consisting of the Bottle, the Bottle Rocket Stage One, and Bottle Rocket Stage Two) feature microphones capable of providing a wide palette of tonal characteristics and pickup patterns to satisfy even the most discriminating tastes. The Bottle Series integrates the best of Blue's discrete class-A circuitry with a unique and revolutionary system of interchangeable capsules, like Blue's Bottle Caps, that provide the engineer with a wide range of potential tonal characteristics.

The Bottle

Blue's flagship recording tool, the Bottle, is our highest achievement in quality and innovation. Meticulously hand assembled, the Class-A discrete Bottle utilises a single EF86 pentode vacuum tube in triode mode. The Bottle combines low noise and superb transient response, and when combined with Blue's nine interchangeable Bottle Caps capsules, provides the recordist with an entire mic cabinet all in one mic!

Bottle Rocket Stage Two

Designed for speed and transparency, the Stage Two's transformerless, Class-A discrete tube amplifier circuit delivers low noise and superb transient response. Like the Bottle, the Stage Two has the ability to hot swap up to nine different capsules for amazing versatility.

Bottle Rocket Stage One

The Stage One is Blue's most accessible mic with a foundation of interchangeable capsules. The Class A discrete solid state Stage One has a very low self-noise specification (←7.5dB) and a very high output level (+12dBV), making it the perfect choice for today's high sample rate/deep word length digital platforms.

The Blue Story

Founded in 1995, Blue has grown from a desire to refurbish vintage high-end microphones for fellow musicians into a unique, multi-faceted audio company with a prestigious line of award-winning microphones and accessories. In the 1980s, Bernard 'Skipper' Wise, a professional musician and producer with over 100 albums to his credit, and Martins Saulespurens, a renowned audio and electronics engineer, began repairing and restoring microphones for fellow artists who longed for the character and quality of microphones produced in the 1940s and 50s (oftentimes thought of as the Golden Age of Microphones). Realising that the dawn of digital recording could elevate microphone performance far higher than the models of the Golden Age, they endeavored to start their own microphone brand. Blue Microphones was founded in 1995 expressly to improve the front-end of audio recording by utilising the increased bandwidth benefits enabled by the advances in digital processing (e.g., extended frequency response, dynamic range, and project recording capability). These microphones would harness this new era of digital technology, eliminating the need to suppress the most colourful aspects of the audible spectrum (thundering lows and piercing highs) that were previously constrained by the analogue process of recording onto tape. Basing many of their concepts, designs, and technology on knowledge gleaned from years of repairing and improving classic microphones from a wide variety of manufacturers, but also simultaneously integrating new technologies, materials, and a first-hand knowledge of today's recording processes, Blue began to pioneer the perfect analogue input devices for the digital age.

Application Specific Series

Every Blue microphone in the Application Specific Series contains its own proprietary capsule that is hand-tested to capture a specific sonic signature. Blue's philosophy is to create microphones that are unparalleled for their intended application. For example, the Mouse is a low-frequency focused microphone that specialises in capturing the bigger-than-life lows of kick drums, bass amps, and deep vocals, whereas the Dragonfly is designed specifically to capture and thicken thin sounds from soprano vocals and instruments like drum overheads.

Cactus: Nine-pattern tube condenser – vintage vocals
Kiwi: Solid state multi-pattern – Blue's signature contemporary vocals
Mouse: Bottom end boom – bass, drums & broadcasting
Woodpecker: Only ribbon mic with true top end – classic warm sound and an ultra-smooth top end
Dragonfly: Thickens thin sound sources – high vocals, acoustic guitar, drum overheads
Blueberry: Commanding, intimate presence – vocals moved to the front of the mix
Baby Bottle: Midrange focused – rock vocals, guitars

L–R: Cactus, Kiwi, Woodpecker, Mouse

L–R: Blueberry, Dragonfly, Baby Bottle

Capture Every Note

Blue's philosophy is that all great sound begins with the capsule. Hand assembled and tuned, our proprietary capsule designs capture specific sonic signatures in specific ways, creating completely different tonal characteristics for each mic in the Blue lineup. In addition, Blue employs state-of-the-art technology that ensures the purest possible signal path and Class-A fully discrete circuitry with no ICs, pads, or filters; each microphone is designed to fill a specific role in a recordist's repertoire. The result is a portfolio of professional microphones that create a palette of sounds, enabling artists to truly realise the sonic landscape of their vision.

Innovative Consumer Electronics

Snowball

The Snowball is a direct plug n' play USB mic for either Mac or PC – no drivers are required. With its dual-capsule design and unique three-pattern switch (cardioid, cardioid with -10dB pad, and omni), the Snowball can handle everything from soft vocals to the loudest garage band, and it's ideal for podcasting.

Mikey

Mikey is Blue's new award-winning recorder for the iPod that can record lectures, voice notes, live music, and interviews in stunning high fidelity. Blue's superior quality stereo condenser capsules, three-position user selectable gain settings, and a unique user-positionable head allow for amazing high quality recordings from a whisper at 30 paces to a blasting rock concert. Compatible with a wide range of iPods, it's never been easier to get award-winning Blue quality sound on the go.

L–R: Icicle, Snowball, Snowflake, Eyeball, Mikey

Sound for Everyone, Everywhere

With the advent of increasingly powerful personal computer recording software such as Apple's GarageBand™, Blue realised that project studio recording presented the next revolution of the recording industry. Believing that the lack of a high-quality USB microphone to protect the signal source would be an impediment, Blue developed the Snowball, now the number one-selling wired condenser microphone in the world. Throughout its development process the Snowball was designed with musicians in mind, however people quickly began to adopt the product for consumer applications such as podcasting, chatting, and narration. These new and constantly expanding applications have allowed Blue to tap into its Pro Audio DNA to launch a line of products catering to life outside the studio. These include high-quality USB products for both Mac and PC, iPod accessories, and an XLR-to-USB converter that allows everyone to take advantage of the quality and performance inherent in every Blue microphone, right on their own computer.

At Blue, we're 100% committed to getting the very best microphones in the world into the hands of those who have a passion for high quality audio, believing that everyone, everywhere, should have access to great sound. This is our heritage and will always be the core focus of everything we design and produce. Blue is the microphone company of today, with products built for the next generation of sound.

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Microphones

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DPA Microphones

Professional Microphone Solutions for Any Need

Expression is everything

DPA Microphones is a leading manufacturer of high quality condenser microphones for professional applications in studio, broadcast, theatre, video/film, and sound reinforcement environments. All DPA microphones are designed and manufactured in Denmark, combining state-of-the-art technology with unique design.

DPA 4099 Clip Microphones

The 4099 mics and mounting systems are meticulously designed and optimised for each of these four instrument families.

4099 Guitar

Perfect for acoustic guitar, mandolin, banjo, and dobro, the 4099 Guitar offers practically unlimited placement possibilities as well as a natural sound.

4099 Violin

Violin and viola players will appreciate how gently the 4099 Violin adheres to a prized instrument while its unobtrusive design keeps it from getting in the way.

4099 Key Features

- **Superior gain-before-feedback**
- **Wireless compatible**
- **One-hand mounting**
- **Holder gentle to the instrument**

4099 Trumpet

An ideal tool for trumpet and other brass instruments, with or without mute, the 4099 Trumpet effortlessly handles even the highest sound pressures.

4099 Sax

Soprano, alto, tenor, or baritone, the 4099 Sax fits them all, providing exceptional gain-before-feedback and a broad spectrum of uncompromised tonal possibilities.

DPA 5100 Mobile Surround Microphone

The DPA 5100 is a mobile surround microphone whose compact size and ease of use come at no sacrifice to its stunning sound quality. Ideal for bringing truly engaging surround ambience to HDTV production, the versatile 5100 can be mounted on a camera or microphone stand, suspended, or simply handheld via a handgrip.

A completely self-contained plug-and-play solution for 5.1 audio capture, the 5100 employs five miniature pressure transducers that exhibit extremely low sensitivity to wind and mechanical noise, low distortion, highly consistent low frequency response, and enormous dynamic range.

5100 Key Features

- **Plug-and-play solution**
- **Lightweight and portable**
- **Rich, smooth, and fully enveloping sound character**
- **Discrete 5.1 analogue output – no processing needed**

The end result of DPA's innovative design approach is a surround atmosphere that is rich, smooth, and fully enveloping, exemplary in its coherence, channel separation, and localisation accuracy.

Other Surround Solutions

The DPA Decca Tree (D3) and Surround Mount (S5) are highly versatile and stylish microphone mounts for two, three, or five microphones. The unique building block design provides extreme flexibility, allowing the possibility of numerous configurations, both fixed installations and mobile setups.

Optimised for use with DPA microphones, the array accommodates all microphone holders. In the Decca Tree configuration, all three microphones can be spaced 60-210 cm (2-7 ft) apart, either 'on-line', in a vintage Decca school T-shape, or in an equilateral triangle configuration for optimal balance with a centered fixation point.

D3/S5 Key Features

- **Flexible and lightweight**
- **Elegant with integrated cable option**
- **Matched surround microphone kits**
- **Reproduces any array**

Designing surround arrays is where the modularity of the S5 really shines. Commonly accepted arrays like spaced omnis and Decca Tree with omnis in front and backwards faced cardioids as rear mics are obvious.

Also, arrays like OCT2, Hamasaki Square, Fukada Tree, and the DPA specialty WCSA (Wide Cardioid Surround Array) are possible with the S5.

Articles on Surround Solutions

The DPA Microphone University offers a number of articles on successful and commonly used surround techniques. Visit Mic Uni online **www.dpamicrophones.com/micuni.**

DPA Miniature Microphones for Speech and Close-Miking Instrument Applications

Originally designed for use with wireless systems in theatre, television, and close-miking instrument applications, the capsule of Miniature Microphones is smaller than a

pencil eraser. They have a neutral character with great detail and resolution, and a rounded present sound with a highly natural response.

Manufactured to exacting standards, the rugged and reliable miniature range is tailored to handle heat, humidity, and sweat, as well as wind and popping. DPA miniature mics are undetectable on stage, and a Miniature Microphone Headband is easily adjusted to fit any head and stay there.

With its elegant design and excellent performance, the Boundary Layer Microphone is ideal for use in boardrooms, conference facilities, courtrooms, teleconferencing, and other applications where excellent vocal pickup is required.

A broad range of connection adapters is offered as optional accessories for most professional wireless systems.

DPA Standards for the Highest Resolution

DPA's audio philosophy is based on the notion of zero sound colouration, and the complete and honest accuracy of these microphones is unequalled.

DPA Standard Microphones are high quality studio microphones comprised of omnis, cardioids, and wide cardioids. There is no comparison to the complete and honest accuracy of these microphones. They deliver a faithful reproduction of the original sound with components carefully selected to provide optimal neutrality, accuracy, and low distortion.

Also included in the DPA Standard Family are Large Diaphragm Microphones; top-of-the-range one-inch capsule omni microphones. With their transparency and neutral character, DPA's large diaphragm microphones are ideal for use with vocals, strings, or other acoustic instruments with a high dynamic range.

DPA Compacts – The Choice of Musicians for Maximum Clarity

DPA Compact Microphones are the smaller cousins of the standard microphones and are also available as omni, cardioid, and wide cardioid models. Specifically designed to satisfy the demands of professionals, the Compacts offer ingenious mounting solutions as well as sonic excellence.

They are especially valuable for low profile use together with DPA's elegantly designed stands, for the close-miking of instruments, as table and podium mics, and as reinforcement mics in live performance venues.

Use a carefully matched Compact Stereo Kit for ORTF and XY stereo setups, or place individual mics in DPA's elegant Flamingo series of floor and table stands. Our Compact Cardioids use the same capsule as the extremely popular 4011, but are pre-amplified using a built-in miniaturised thick-film mounted FET amplifier. The result combines the trademark DPA sound with aesthetic and functional design solutions.

Surround Matched Microphone Kits – the Perfect Match to D3/S5

Good surround sound requires exceptional microphones with a neutral character and authentic reproduction without colouration. They should furthermore have a large dynamic and frequency range to be able to offer full benefit from high resolution digital formats.

The homogeneity and precise matching accuracy of more than two microphones are of utmost importance when recording acoustic surround; it is the defining factor between an average production and a true masterpiece. These Surround Matched Mic Kits will not let you down:

5006, 4006-TL Surround Kit
Intended for use in spaced omni configurations

5006-11, 4006-TL/4011-TL Surround Kit
Intended for use in Decca Tree front/backwards faced cardioids rear configuration

5015, 4015-TL Surround Kit
Intended for use in WCSA, Wide Cardioid Surround Array

About DPA Microphones

Drawing on more than five decades of world-class microphone design experience, DPA Microphones has manufactured microphones in its own name since 1998. The company employs well over 100 people and is represented by professional audio distributors and dealers in more than 40 countries around the world. All DPA microphones and components are manufactured at the company's purpose-built factory in the north of Denmark.

DPA
MICROPHONES

DPA MICROPHONES

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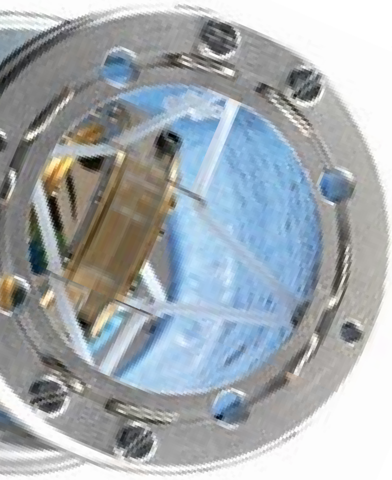
HORCH AUDIO + + + + HORCH AUDIO+ + + + HORCH AUDIO+ + + +

The Sound Of Emotion: Horch



Horch was established in the 1990s by a small team of dedicated audio experts, whose vision was to create a microphone able to convey emotion through sound. All Horchs are large-diaphragm tube microphones.

How Everything Started

The founder of Horch, Gibbs Platen is very familiar with the world of audio. His recording studio Zuckerfabrik was famous for American Jazz and Rock productions, and acoustic bands such as Colosseum, Wolfgang Dauner, John Scofield, Alphonse Mouzon, The United Jazz + Rock Ensemble, etc. He also freelanced for TV and broadcast productions.

Gibbs Platen, founder of Horch Audio.

During this time, Platen became familiar with a wide variety of microphones, but his all time favourite for vocal recordings was the Neumann M49 tube microphone. However, Platen felt that of these old microphones had lost some of their expected excellence by this time. Here, Horch Audio's story begins.

The Microphones

In the early nineties, Gibbs Platen and two friends founded Horch Audio with the ambition to build a microphone in the same vein as the M49, but improved. That's where the Horch RM2 came to life. In the beginning, the RM2 was built using original parts from Neumann. As a finishing touch, Platen placed a 0.5-carat brilliant diamond into the front of the RM2, which was illuminated from the inside. Later on, Horch modified the RM2 into the RM2J, with the intention to move the sound more in direction of the U47. The triode was replaced by a pentode, and a new developed capsule and transformer were built in. The RM3 was released, harking back to the sound of the old ELA M251 and especially designed for female vocals and instruments. The RM4, recalling the U47 sound, launched in 2007/2008. It displayed a whole new concept – adjustable compression, and saturation of the microphone.

Horch's Vision

The idea behind Horch's vision is to build microphones with outstanding quality for a new listening experience. That is why everything in a Horch microphone is handmade in Germany. A lot of effort is spent on research and listening, mechanical fine-tuning, and keeping in contact with customers and artists.

The company is situated in the German high-tech region of Stuttgart (Mercedes, Porsche), which promotes high standards for mechanical and electrical quality.

Each Horch is a precious sound tool, that looks great and sounds unique.

ORCH AUDIO+ + + + HORCH AUDIO+ + + + HORCH AUDIO+ + + + AUDIO

RM2J

RM2J

The Horch RM2J was inspired by the Neumann M49/U47. Every electrical and optical detail is fine-tuned to provide optimal performance. The RM2J works in two different operating modes.
In the first mode, it works as a microphone with an adjustable polar pattern – the capsule illuminates blue.
In the second mode, the RM2J is a broad cardioid microphone, with a special vocal boost. This mode delivers a unique fat and rich vocal sound, and the capsule illuminates red.

RM4

RM4

The RM4 has a unique feature, that gives you a lot of control over the sound of the microphone: the saturation of the tube is adjustable from a very clear to a high saturated and compressed sound. The RM4 is well suited for punchy and fat lead vocals.
It combines the sound of the U47 era with the unique Horch quality.

RM3

RM3

The Horch RM3 is inspired by the ELA M251. It comes with an integrated shock mount and pop filter. The RM3 delivers a very crisp and transparent sound independent from the sound level. It is well suited for female lead vocals and instruments.

HORCH AUDIO

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MicW – Precision Solutions

MicW Audio is a precision microphone manufacturer of metal-type professional microphones for recording, broadcasting, and live music. Its N-series high quality condenser microphones are based on nickel diaphragm technology. From the subtlest sound of a piano, to the high intensity of a full brass section, the MicW microphones present spectacularly pure and uncoloured sound.

Company Profile

MicW was founded in Beijing in 1989 by five well-educated acousticians with the ambition to create world-class microphones. The company's early business was focused on manufacturing measurement microphones for OEM market. Rich experiences in measurement microphones enabled the company to enter the professional microphone market with its own brand technology and manufacturing facilities.

Production and Quality

The 2,000m^2 MicW production facility is located in Beijing, China. The facility comprises manufacturing areas, test laboratories, environmental chambers, a full anechoic chamber, and a clean room. All microphones are handcrafted and individually tested. The MicW is committed to total quality management, ensuring that every product meets strict standards in performance. The MicW production facility has been awarded an ISO9001 Certificate by TÜV.

Research and Development

As a technology-leading company, MicW invests heavily in product research and development. Engineers were recruited with a specific knowledge domain and skill-set, 80% of them with M.S. and Ph.D. degrees in Audio Engineering, Acoustics, and related sciences. This results in not only an incredibly knowledgeable team of developers and technicians, but also a team that is dynamic, innovative, highly motivated, and capable to develop and manufacture high quality products.

Products

N-Series – Precision Recording Microphones

The N-series precision recording microphones are based on the nickel diaphragm technology in all metal structures. The microphones transport spectacularly pure and uncoloured sound from the subtlest nuances of a solo violin, to the thunderous intensity of a full brass section or drum kit.

The N-series has five models ranging from large diaphragm cardioid to 1/4" omni microphones, which cover the application from vocals, grand pianos, instruments, and drum kits. The modern-styled N-series microphones are carefully designed to look as beautiful as they sound.

The N-series microphones leverage MicW's research and development into nickel diaphragm technology. The nickel diaphragm is precisely stretched to give the full frequency range of response; some models can be up to 70kHz. A thin layer of polymer is then coated on the diaphragm to give a subtle touch of the performance.

E-Series – Performance vs. Cost

The MicW E-series microphones are developed for general recording purposes, with a high ratio of performance:cost. The E-series microphones have similar mechanical structures to the N-series microphones, but use a different material. The diaphragms of the E-Series are made from polymer and coated with gold or nickel. Innovative designs give E-series microphones similar accuracy and performance to the N-series microphones, but at lower costs. E-series microphones

E-Series

G-Series

are a good choice for customers looking for high value microphones with high performance.

There are three models of E-series microphones, ranging from shotgun, to 1/2'' and 1/4'' microphones, and with polar patterns from super-cardioid to omni-directional.

G-Series – Golden Diaphragm Microphone

The MicW G-Series Golden Diaphragm Microphone is an omni-directional microphone that uses a 26mm diameter large diaphragm capsule. It uses a gold-plated polymer diaphragm, the tension of which is carefully adjusted during the manufacturing process to ensure a frequency response from 10Hz to 20kHz, with a 4-6dB soft boost around 8kHz. The G-Series offers a totally transparent audio path with an exceptionally low noise floor of maximum 12 dB(A).

Microphone Pair

MicW also provides microphone pairs, which are state-of-the-art stereo kits featuring two matched microphones. Each pair is guaranteed to a sensitivity match within 0.5dB, and phase match within 5 degrees up to 5000Hz.

Highlights of MicW Audio

- **Precision microphone manufacturer based in Beijing with ten years of experience**
- **Condenser capsules with nickel diaphrams**
- **High quality products with a 5 year warranty**

Microphone Pair

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Sennheiser – The Audio Specialists

For more than sixty years, the name Sennheiser has been synonymous with state-of-the-art microphone solutions. Bands, artists, live sound engineers, recording engineers and amateurs, broadcast professionals and film crews worldwide rely on Sennheiser microphones.

History

Laboratorium Wennebostel

Sennheiser was founded in the summer of 1945 as 'Laboratorium Wennebostel' or 'Labor W' (Lab W) for short, named after the tiny village of Wennebostel. Founder Prof. Dr. Fritz Sennheiser was the deputy head of the Institute for Radio Frequency Engineering and Electroacoustics at Hanover Technical University. Together with seven institute members, he turned the relocated university lab into a small company and started manufacturing measuring devices. Just two years later, the engineers unveiled their very first microphone design, the MD 2 – and were soon to become experts in many fields of audio recording and reproduction. Early product highlights included amplifiers, microphone transformers, magnetic miniature headphone capsules, and microphones such as the MD 3 'invisible' mic (1949), the MD 82 shotgun microphone (1956), and Sennheiser's first wireless microphone (1957), which opened up a field in which the company was to excel in the future. In 1958, Lab W was renamed 'Sennheiser electronic', as the company had long since ceased being just a small laboratory.

Sennheiser electronic

Innovations continued under the Sennheiser brand name. The company developed condenser microphones that operated according to the RF principle, and the first professional condenser clip-on microphone, the MK 12. The world's first open headphones were developed at Sennheiser (1968), pre-polarised condenser microphones were added to the portfolio, and the company led the innovation for infrared sound transmission in the seventies. The launch of the RF wireless classic SKM 4031-TV in 1982 laid the foundation for the success of Sennheiser wireless systems in the following years, and was soon followed by the development of the first directional clip-on microphone and the smallest studio condenser clip-on mic at the time. 1993 saw the launch of another wireless classic, the SKM 5000. In 1987, Sennheiser was awarded the Scientific and Engineering Award for the MKH 816 shotgun microphone, followed in 1996 by an Emmy Award for pioneering developments in RF wireless technology. In 1998, the evolution microphone series was launched. evolution wireless, Sennheiser's most successful RF wireless series to date, has taken over the stages of the world since 1999. In 2000, Sennheiser introduced the MKH 800, the first studio microphone to fully utilise the wider frequency range of the new digital audio formats. 2002 saw the glamorous combination of two industry standards, the SKM 5000 N with a Neumann capsule. In 2007, Sennheiser launched its new MKH 8000 Series. 2009 saw the launch of the 2000 Series and of the third generation of evolution wireless systems.

From 1988, the company had begun founding its own sales subsidiaries to further increase proximity to its customers. Today, the Sennheiser sales network is comprised of subsidiaries in France, Great Britain, Belgium, the Netherlands, Germany, Denmark (Nordic), Russia, Hong Kong, India, Singapore, Japan, China, Canada, Mexico and the USA, as well as long-term trading partners in many other countries. The Sennheiser Group employs about 2,000 people around the globe, and has manufacturing plants in Germany, Ireland, and the USA.

Company founder Prof. Dr. Fritz Sennheiser and his son Prof. Dr. Jörg Sennheiser, Chairman of the Supervisory Board.
(PHOTO: PETRA SCHRAMBÖHMER)

The Microphone Portfolio

evolution Microphones

The evolution series of microphones was created to provide a complete microphone set-up for vocals and the entire backline. Designed according to the needs of singers and musicians, the evolution line comprises evolution 600 Series instrument microphones, evolution 800 Series vocal microphones, and the top-of-the-range 900 Series with such acclaimed models as the e 935 dynamic vocal mic and the e 965 large-diaphragm, true condenser microphone.

The MD Range of Dynamic Microphones

Sennheiser's rugged dynamic microphones include such all-time classics as the MD 21 (in the portfolio since 1953), MD 421 (since 1960), and MD 441 (since 1971), but also reporters' microphones like the MD 42 and MD 46. All of these models are extremely rugged and easy to use.

The MKE/ME Range of Permanently Polarised Condenser Microphones...

...contains everything from professional sub-miniature clip-on microphones for use with Sennheiser's world-renowned RF wireless technology to headset microphones and small camcorder microphones. Examples include the legendary MKE 2, the award-winning HSP 2 and HSP 4 headset microphones, and the MKE 400 camcorder microphone. With the K6 Series, the user can tailor the microphone to the recording situation by adding ME microphone heads of varying directivity (from omni to shotgun) to the basic power module.

MKH Microphones

The choice for recording, broadcast, and filming specialists, Sennheiser's MKH microphones are a sophisticated class of condenser microphones. They operate according to the RF principle and use a unique symmetrical push-pull transducer. The result of this balanced design is an unchanging acoustic impedance, extremely low distortion figures, a higher capsule output with much lower noise, and thus a very clear signal. Moreover, these microphones are uniquely insensitive to unfavourable climatic conditions, have a wide dynamic range and an excellent low frequency response even with small capsules. A further benefit of RF condenser microphones is that, although the capsule is grounded, they possess a genuine fully floating, balanced output without the need to use a transformer. The latest models in this line are the MKH 8020 (omni), MKH 8040 (cardioid), and MKH 8050 (super-cardioid).

Wireless Microphone Systems

Sennheiser enjoys an excellent reputation in the field of large multi-channel RF wireless systems. Thanks to the exacting specifications and outstanding RF properties of Sennheiser's wireless technology, users were able to create systems with more than 140 microphone channels operating simultaneously. The top-of-the-range 3000 and 5000 Series include such industry standards as the SKM 5200 handheld transmitter, SK 5212 bodypack transmitter, and the EM 3732 twin receiver. A new entry series for Sennheiser's professional segment, the 2000 Series, offers Sennheiser's renowned audio and RF quality at a very attractive price point.

For more than one million users worldwide, the evolution wireless Series is their no.1 choice for stage and live use. Whether wireless instrument mics or acclaimed vocal models – this series contains wireless solutions for almost every application. In April 2009, Sennheiser launched the third generation of its most successful wireless series, with a whole range of exciting extras to offer up-and-coming bands, established performers, presenters, musicians, reporting teams, and PA companies outstanding quality at attractive evolution prices.

Digital Microphones...

...are the youngest members in the Sennheiser microphone family. A digital module, the MZD 8000 (available from summer 2009), turns the renowned MKH 8000 series into digital microphones. Perfectly matched to the MKH microphone heads, the module directly 'translates' the clear, warm, and responsive sound of the microphones into the digital world, avoiding the losses or signal disruptions to which cables are prone. The microphones can be remotely controlled, allowing parameter settings such as the low-cut filter and attenuation to be adjusted via an AES 42 interface and a PC.

From the past – the MD 2...

...to the present – the SKM 5200
with MD 5235 microphone head.

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Legendary Performance

Superior sound and solid reliability have made our microphones the industry standard for decades. Shure microphones deliver consistent vocal and instrument reproduction in any performance or recording setting, which is why they are legendary.

Shure microphones for performance and recording are designed for artists and engineers at all levels. Whether you're at the top of the charts or on your way there, choosing from any of these Shure product lines puts you in good company.

KSM

Shure KSM microphones balance exceptional performance and flexibility with a level of reliability and consistency not typically found in ultra-premium microphones. Finely tuned condenser cartridges give voice to each of these seven elegant models, with high sensitivity to accurately capture the widest variety of sound sources. Their very low self-noise makes them ideal for use with digital mixing and recording equipment. On some models, switchable polar patterns allow the configuration to be instantly changed to suit the characteristics of a particular voice, instrument, or miking technique.

The KSM9 unites the best of studio and stage. With its dual diaphragm design and switchable polar patterns, the KSM9 reveals nuance and subtlety normally heard only in a studio microphone. Yet its solid build quality delivers traditional Shure dependability that allows it to be used in the most demanding live environments. A wireless version is also available for performances where complete mobility is required.

The KSM9 brings studio sound quality to live performances

New introductions to the KSM range for 2009 include the KSM313 and KSM353 ribbon microphones (formerly known as Crowley and Tripp's Naked Eye and El Diablo respectively).

Beta

Shure Beta microphones are designed specifically for use in live performance applications. They feature carefully tailored supercardioid polar patterns with a remarkable absence of off-axis colouration, for use when high sound levels onstage require maximum isolation without sacrificing sound quality. Handheld vocal, miniature instrument-mount, and low-profile head worn models are available, as well as dynamic and condenser kick drum models. The popular Beta87 vocal microphone is also available in a cardioid version, which provides additional ambience for users of in-ear monitors.

SM

Legendary SM microphones have come to define the sound of live performance. Recognisable by name and reputation, SM microphones are virtually indestructible professional gear, built to take the punishment of night-after-night touring. Durable and reliable, SM microphones deliver consistent vocal and instrument reproduction in any performance setting. The SM58 and SM57 – the #1 and #2 bestselling microphones worldwide for decades – possess a consistency and familiarity that takes some of the guesswork out of setting up an unfamiliar sound system in an unfamiliar venue.

SM57 and SM58 – standard equipment on stages worldwide

SM microphones make every performer sound good.

Performance Gear

Performance Gear microphones are designed for the entry-level performer. They include a complete set of vocal, instrument and drum microphones. Ideal for everyday use and practice, they share many of the performance and construction details of other legendary Shure microphones. Performance Gear microphones come complete with cables and accessories, so they easily fit into the beginner's budget. New models in this range include the PG27 multi-purpose microphone, and the PG42 vocal microphone (both available in USB and XLR versions).

Shure wireless microphone systems deliver the freedom and convenience of wireless, while matching the legendary sound quality of our wired microphones. All Shure wireless systems are available in both handheld and bodypack styles, with a wide choice of handheld, lavalier, and headworn microphones. Receivers range from simple to elaborate, and a full selection of accessories and other tools are available to complete any installation.

X2U

The X2U is Shure's new XLR to USB signal adaptor allowing users to convert their favourite wired microphones into USB.

UHF-R

Shure UHF-R Wireless Microphone Systems deliver uncompromising Shure sound, and are the premium choice for the most demanding music, theatre, and broadcast applications. Up to 108 systems can be used in one location (country-dependent), and the entire system can be networked together via USB or Ethernet connections. Internal Flash memory stores six 60-channel custom editable frequency groups, which can instantly be recalled and loaded across all receivers on the network. The all-metal handheld and bodypack transmitters have switchable RF output power and a backlit LCD display. Shure's breakthrough Audio Reference Companding delivers crystal-clear sound that matches a hard-wired microphone. Shure Wireless Workbench software makes it easy to configure, monitor, and control every unit using your PC, from transmitter and receiver settings to battery status.

ULX

Shure ULX wireless systems deliver outstanding performance for working musicians and professional sound system installers. Up to 40 systems can be used in one location (country-dependent), making ULX an excellent choice for larger performing groups, meeting facilities, and houses of worship. Shure Predictive Diversity constantly monitors RF signal strength and silently switches antennas when it appears likely that a dropout will occur. Automatic Frequency Selection makes it easy to find an open frequency, lockable frequency and volume adjustments prevent tampering once the system has been set; ½-wave antennas that can be remote-mounted are standard equipment; and the receiver provides in-line power for antenna amplifiers.

SLX

Shure SLX wireless systems are designed for working bands and sound system installers. Useful features like Automatic Frequency Selection and Infrared Auto Transmitter Setup make setup quick and easy, and Shure's patented Audio Reference Companding delivers sound that matches a wired microphone. Up to 20 systems can be used in one location (country-dependent).

PGX

Shure PGX wireless systems are designed for performers who are in charge of their own sound. Automatic Frequency Selection and Infrared Auto Transmitter Setup ensure quick and easy setup, while microprocessor-controlled diversity and Audio Reference Companding deliver great sound and reliable performance. PGX systems are available with the most popular Shure handheld, lavalier, headworn, and instrument microphones, providing a stage-ready option for almost any application. Up to 12 systems can be used in one location (country-dependent).

Shure History

Founded in 1925, Shure has consistently produced innovative products that have become industry benchmarks. Here are just a few of the many Shure milestones:

The first directional microphone: The model 55 Unidyne, introduced in 1939, was the first directional microphone, meaning that it was able to reject sounds from the sides and rear. The Unidyne greatly improved the sound quality of public address systems. The unique styling of the 55 series – also known as "the Elvis mic" – has been featured in countless videos, movies, and ads.

The first wireless microphone: The Vagabond 88, introduced in 1953, was the first wireless microphone system for performers. The radio signal from the microphone was picked up by an antenna wire along the perimeter of the stage, which connected to a receiver.

Model 55SH Series II has been featured in movies and advertisements for decades

The first stereo phonograph cartridge: Introduced in 1958, the M3D brought high-fidelity into the home, at a time when millions of people were discovering stereophonic sound.

The first portable P.A. system: The Vocal Master, introduced in 1958, was the first product to combine a mixer, equaliser, and amplifier, in one portable unit, greatly simplifying P.A. system setup and operation.

Shure Incorporated corporate headquarters is located in Niles, Illinois, in the United States. The Company has additional manufacturing facilities and regional sales offices in China, Germany, Hong Kong, Japan, Mexico, The United Kingdom, and The United States.

SHURE
LEGENDARY PERFORMANCE

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Surround Recording From A Single Microphone

What other microphone systems can produce simultaneous mono, stereo, M/S and surround from a single mic? With their surround-ready mic technology, it's easy to see why SoundField systems are the products of choice for many HD broadcasters working in surround...

All over the world, TV companies are gearing up for the move from Standard Definition (SD) to High Definition (HD) broadcasting, for which 5.1 surround is the main required audio standard. As a result, the number of broadcasters that require a quick and easy method of capturing audio in 5.1 whilst maintaining compatibility for stereo SD transmissions is increasing fast. Using SoundField technology there's no need for costly multi-microphone arrays, spaced-capsule 'dummy heads' or complex recording techniques – and unlike that from spaced arrays, the multi-channel audio that SoundField generates is completely phase-coherent.

SoundField Digital

Since 2006, when its DSF-2 digital microphone systems were first released to the broadcast market, UK manufacturer SoundField has steadily become accepted amongst big-name European broadcasters as offering the tried-and-tested method of delivering broadcast-quality 5.1 surround sound – high-profile users now include European satellite broadcaster Sky and UEFA's exclusive media partner TEAM AG. This was exactly what the DSF-2 was designed for: its all-digital design offers a high-quality, accurate signal path, and the microphone can be used to generate stereo and surround audio for simultaneous SD and HD transmissions at up to 300 metres from its associated processor. The processor, in turn, can be situated up to a kilometre from the associated OB vehicle, providing a reliable operating distance of up to 1.3 kilometres from the microphone head. This offers a further unique advantage in outside broadcast situations where the remote vehicle is situated a long way from the action being filmed.

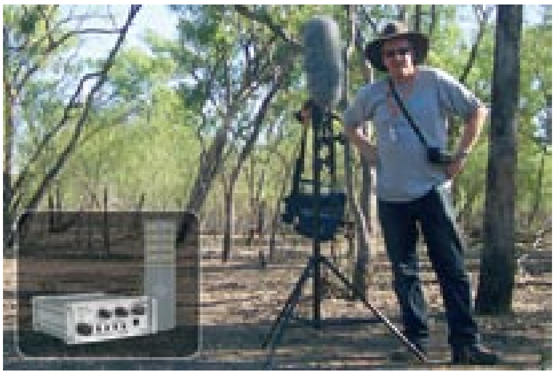
The SoundField DSF-2 in use capturing the ambience on Centre Court for a BBC HD broadcast during the 2008 Wimbledon Tennis Championships.

The 1U-rack DSF-2 controller unit offers live decoding to stereo, M/S, and SoundField B-Format (which can be further decoded into any existing or future multi-channel audio format if required). The stereo signal may be output directly from the DSF-2 in the analogue or digital domain via rear-panel XLRs or AES/75Ω BNC connectors respectively, while the M/S and B-Format signals are output digitally. From here, the digital B-Format signals may be decoded to 5.1 surround by SoundField's DSF-3 Digital Surround Processor, or by the company's Surround Zone decoding software plug-in, available for use with Pro Tools, SADiE, and all DAWs that support the VST multi-channel standard, such as Nuendo, Cubase, Sequoia, and Pyramix, on both PC and Mac platforms. Digital output is possible at 48, 96, and 192kHz for the best possible audio quality.

In its first year, the DSF-2 was used to originate simultaneous stereo and 5.1 ambience from the soccer World Cup in Germany, satellite broadcaster Sky subsequently began using DSF-2 systems on the majority of their live HD sports broadcasts, including international golf, rugby, cricket, and darts, and in 2008 a DSF-2 was used during the BBC's HD coverage of Wimbledon for the first time. Now it has begun to see use outside the realms of sport; 2009 has seen a DSF-2 being used on ITV's *The X-Factor*, and to capture the reactions of the live audience in 5.1 during Harry Hill's BAFTA-winning *TV Burp*.

SoundField Portable

The company's most affordable products are also their most portable. Like all SoundField systems, the ST350 generates SoundField B-Format and consists of a multi-capsule microphone and an associated processor unit. However, in this system, the mic is about half the size and weight of other SoundField mics, and the decoder/processor can be powered from the mains or batteries. This makes the ST350 ideal for use in the field: Sound Designer Wayne Pashley (pictured above right) recently made it his mic of choice whilst travelling around the far reaches of the outback capturing Australian 'ambiences' in 5.1 for Baz Luhrmann's film Australia, starring Nicole Kidman and Hugh



Sound Designer Wayne Pashley at work in the Australian outback with the ST350.

Jackman. Other film users include John Casali, Second Unit Sound Mixer on Harry Potter And The Half-Blood Prince, who used the ST350 to capture the magic of the Great Hall of Hogwarts in 5.1 surround.

The small, lightweight SPS200 is the first SoundField microphone that doesn't require a hardware decoder, and can be used with any four-channel mic pre with 48V. Stereo and surround decoding for the SPS200 is performed by using the included SPS200 Surround Zone software. To complement the SPS200, SoundField has recently introduced the SMP200 gain-matched mic preamp. The SMP200 differs from other multi-channel preamps by offering a ganged master gain control, 48V phantom power, and a low-pass filter that can be applied simultaneously across all four channels, thus ensuring the outputs from the SPS200's capsules remain perfectly matched.

More Information

SoundField systems are used daily by many international broadcasters, including Sky, France 3, the BBC (UK), RAI (Italy), NBC (USA), SR (Sweden), YLE (Finland), WIGE (Germany), and Topvision (Germany).

If you need to provide surround-sound audio for broadcast and would like to discuss your requirements, you can contact SoundField via the details below.

The entry-level SoundField mic, the lightweight SPS200 is used in conjunction with its included SPS200 Surround Zone software. The mic can be used with any preamp, but SoundField's four-channel SMP200 gain-matched mic pre complements it perfectly.

Products

Digital:

- DSF-1 – A fully digital SoundField system utilising similar technology to the DSF-2, but adapted for high-end music and concert hall recording applications.
- DSF-2 – A digital microphone system designed specifically for broadcast.
- DSF-3 – A 19-inch 1U B-Format-to-5.1 digital decoder, designed for use with the DSF-1 and DSF-2.
- UPM-1 – A 19-inch 1U stereo to 5.1 converter (see box for more details).

Software:

- Surround Zone – Stereo/surround post-production software.

Analogue:

- MKV – SoundField's top-of-the-range analogue system.
- SPS422B – Professional microphone system with 1U control processor.
- SP451 – A 19-inch 1U B-Format-to-5.1 analogue decoder.

Portable:

- ST350 – Battery-powered SoundField microphone system.
- SPS200 – Portable, lightweight standalone microphone with included SPS200 Surround Zone software.
- SMP200 – A four-channel 'gain-matched' mic preamp designed for use with the SPS200.

SoundField's UPM-1 Stereo to 5.1 Converter

The UPM-1 offers a simple upmix solution for creating natural-sounding 5.1 surround from a stereo signal. Although HD broadcasts are increasingly produced in 5.1 surround, stereo remains a widely used production format, presenting a challenge to broadcasters wishing to transmit consistent 5.1 audio.

Software and hardware upmixing tools have existed for some time, but most of these devices employ effects such as reverb and phase-shifts to create the extra channels required for 5.1. Instead, the UPM-1 uses a unique algorithm to perform detailed real-time analysis of the stereo source material, identifying and separating the ambience from the direct sound. Mono sources (dialogue, commentary, etc) are extracted from the stereo signal and fed to the centre channel and a good frontal stereo image is maintained by keeping the direct sound sources at the front. The UPM-1 then feeds the extracted natural ambience to the rear surround channels.

Released only recently, the UPM-1 has received favourable feedback from international broadcaster Sky and also further afield in Germany, Scandinavia, Canada, and the USA through the SoundField international distributor network.

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Germany — SEA Vertrieb
w www.sea-vertrieb.de
France — SAV
w www.sav.tv

Studio Projects

Southern California Microphone Company Aims High But Keeps Their Costs Low

In 1997, PMI Audio Group founder Alan Hyatt was beginning to see some success from producing Joemeek's JM47 condenser microphone. However, Hyatt ultimately wanted to produce a full line of microphones. When Joemeek chose a different direction by furthering their signal processing line, Hyatt decided to strike on his own once again to form Studio Projects, a company that quickly earned a reputation for producing sturdy, robust-sounding microphones, preamps, and accessories at a price that even the average 'Joe' can afford.

To cut costs without sacrificing quality, Hyatt partnered with Beijing 797 Audio Co. Ltd, one of the largest and most respected manufacturers in Asia. 797 Audio has one of the largest anechoic chambers on the planet, as well as B&K electro-acoustic testing equipment and digital DASS testing systems. In other words, they have high standards. In addition, PMI Audio Group does its own design, service and modifications in-house utilising the latest equipment. "It was 797's history that gave us the confidence to build with them," says Justin Hyatt, who oversees PMI Audio's U.S. operations in Gardena, Calif. "The company was founded in 1952 by a group of highly experienced German microphone engineers. They have been the premiere audio electronics manufacturer in China ever since."

Studio Projects C1

The Studio Projects C1 is a large diaphragm, fixed-cardioid condenser microphone

- Pressure-Gradient Transducer: 1.06" (27mm) 6um mylar diaphragm
- High Pass Filter, 6dB/octave@ 75Hz or 150Hz
- -10db or -20dB Pad
- Comes with Halo Shockmount, Foam wind screen, and case

The C1, C3 and T3

With their partnership firmly intact and openly discussed, Studio Projects targeted the home and project studio market with the C1, C3, and T3 microphones. Even skeptics soon embraced the company's large diaphragm condenser mics, and word quickly spread via Internet forums and media sources about the company's excellent products and amazingly good deals.

By launching Studio Projects with an affordable line of microphone, the company could tap into the burgeoning home and project studio market; which, in the mid- to late 1990s, flourished as more studio professionals adopted computer and DAW-based recording. "This was the arena where we could most effectively compete, and it helped us build our brand awareness rather quickly, too," says Justin Hyatt.

Studio Projects continued to build name recognition with their C and B Series mics, and drew attention with the budget LSD2, a stereo large-diaphragm condenser mic that essentially consists of two C3 mic capsules contained within a single housing. While Studio Projects' reputation grew in the mid-level studio market, they kept one eye fixed on their long-term goal: to corner the high-end market. In 2007, they broke ground in this arena with the recently launched CS Series, which consists of the all-purpose CS1 cardioid mic and the CS5 transducer microphone. The CS Series features an all-new design from Studio Projects Director of Engineering Brent Casey that's hand designed "from the capsule all the way down to the XLR," says Justin Hyatt. "We're already building a strong momentum with many commercial recording studios in the L.A. area. The line is still new and largely unheard of, but we expect great things from CS."

With three lines of microphones to their credit, moving into preamp design seemed like a logical next step. They took that route with the VTB-1 and SP828 microphone preamps, both designed by Studio Projects and both boasting affordable, yet high-quality technology. The VTB1 is a solid-state preamp using a totally discrete circuit, but also offers a 'Tube Drive', feature, which is a variable drive to a 12AX7 that allows the user to blend as little, or as much of, the Tube Drive they want. "The VTB1 has really gained a lot of ground because it's a very affordable pre, but also very good quality," says Justin Hyatt. "It doesn't use any chips. It's a Class-A/B design, and very transparent sound."

The VTB1 continues to be extremely popular, especially at its $150 price category."

Low Cost Without Cutting The Quality

Studio Projects can keep their overhead low mainly because they build in China. But their alignment with the highly reputed 797 Audio keeps the quality above board. "We are straightforward about where we build, and we have been since we introduced Studio Projects," says Justin Hyatt. "We have such a great relationship with 797 that we wanted to promote them in the beginning and make them proud to produce our microphones. We did this by putting the 797 Audio logo directly on the front of the microphone models. This was only recently removed when we released our CS Series, which has a sleeker look with no writing. All of this translates to 797 giving us microphones produced to our standards and at a price that allows us to be very competitive."

Another element that gives them an edge is the work of designer Casey, the creative mastermind behind Studio Projects. "He's been with us since the beginning," says Justin Hyatt. "Brent has put many years into our designs." The C Series capsules are based on a 1950s Neumann design, reverse engineered and otherwise improved upon using advanced manufacturing techniques. "Brent's newest designs take further advantage of his design expertise, which can be seen in the new CS Series with his newly designed capsule," he continues.

Studio Projects CS5

The Studio Projects CS5 is an externally polarised five pattern pressure gradient transducer microphone with FET impedance converter.

- Pressure-Gradient Transducer: 1.06" (27mm) 6um mylar diaphragm
- FET impedance converter
- Five Polar Patterns: Cardioid, Wide Cardioid, Hyper Cardioid, Omni, Fig. 8
- -5dB, -10dB, -15dB, and -20dB Pads
- 50hZ, 75hZ, 150Hz, and 300hZ High Pass Filters @ 6dB/octave
- 15kHz, 7kHz, 5kHz, and 3kHz, Low Pass Filters @ 6dB/octave
- Comes with Halo Shockmount, Foam wind screen, and case

Halo Shockmount

The Halo is a newly designed shock mount from Studio Projects Microphones. Machined from aircraft aluminum with a plated nickel finish, the Halo is configurable for a variety of miking tasks – including stereo and multi-channel setups, when incorporated with the Studio Projects Stereo bar.

Global Reach and Global Price Parity

Studio Projects' commitment to keeping quality high and costs low mirrors that of others under the PMI Audio umbrella, including Joemeek, Toft Audio Designs, and the upcoming Valley Audio re-introduction. Owning all of these companies, and distributing their products, allows PMI Audio to direct product development and offer what Hyatt calls "global price parity." PMI Audio currently distributes to more than 70 countries worldwide, and the prices are the same in each country, exchange rate notwithstanding. "Having a distribution network in addition to being the manufacturer has distinct advantages," said Alan Hyatt in a 2005 Audio Media interview. "We have our own facility in Torquay, England, with R&D, warehousing, shipping and repair. The U.S. office takes care of North America and the Pacific Asian countries. In countries that we can't service directly, we're set up through local distributors."

The Personal Touch

Despite its global reach, Studio Projects still retains much of the benefits of a boutique company. Working out of PMI Audio's U.S. office, Casey will oversee repairs for any mic, no matter how old, and spends ample time customizing microphones for their customers.

PMI Audio also remains a family business. Both Alan Hyatt's sons are working for the company, his oldest son, Justin Hyatt started as a part-time employee in high school, and now heads up the entire American operation.

"We do have humble beginnings that go back to 1979, when we worked out of our garage as a rep firm called AMH Sales, Inc.," says Justin Hyatt. Years of experience and a large pool of contacts allowed the company to grow into distributing and manufacturing. "Today we have our headquarters in L.A. and a sister office in Torquay, UK," he emphasises.

Where does Studio Projects grow from here? "We intend to further expand our line in both microphones and signal processors," says Justin Hyatt, "and continue to raise the quality of our brand and its products."

StudioProjects

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Violet Microphones – Ears For Your Sound

For a while only price mattered, but now, it is time to:
Get back to quality, get back to reliability,
get back to design…
Get back to what matters – get into Violet Microphones.

Violet Design – Microphones Made in Latvia

It is almost impossible to picture today's pro audio and recording industry without technological innovations and expressive designs introduced by Violet™ microphones. Microphones are made in Latvia, in the same factory that has within the last decade achieved great popularity worldwide with the quality and design of its microphones.

Violet Design was founded in 2003 by Stanislav Rubintsik. The company is a worldwide distribution centre and sales representative of Violet and Flamingo brand microphones.

The factory started to manufacture microphone capsules in late 1994. Its first capsules were placed in legendary vintage microphones: U47, M49, M50, C12, and the 414. In 1997, a new generation of capsule was born. Today you can get the same perfect, original sound and an expressive design with the Violet™ line of microphones.

Philosophy

Violet's main philosophy is to offer handcrafted microphones with a unique style and excellent sound quality, using innovative solutions in microphone manufacturing without losing the best details of vintage sound.

We believe that in the process of music recording, the most important things are passion and inspiration, and nothing should get in the way of these. So in our ideology of microphones, we trust in three simple points:

- It must sound good
- It must look nice
- It must be as simple as possible

A nice look gives you the possibility to grab inspiration at the time of recording. Simplicity grants the microphone a long life and durability. After having recorded, you will never be surprised by incorrect settings, as there will be a chance to change them.

And most importantly, a microphone must do its job as well as possible. To improve its microphones sonically, Violet has been investing a lot in its research laboratories.

The benefits of Violet Design microphones are:

- High SPL level
- Very low self-noise
- Low distortions
- Wide dynamic range
- High output level
- Solid state or tube Class A discrete preamplifier
- An attractive design
- All mics are hand crafted and have 5-year warranty.

Capsule

The heart of the microphone is its capsule – Violet's hand crafted highest quality electrostatic transducers provide high output of the best quality audio signal, and can handle extremely high SPL at the same time. Internal Class-A transformer-less discrete electronics quality is adequate, providing hard to measure noise and distortion parameters. However, Violet's microphone housing designs are primarily based on acoustic ideas.

After a large number of experimental jobs in its laboratory, in September 2005 Violet announced its latest capsule diaphragm technology. We introduced the new mixed gold-aluminum composite coating material, layered diaphragm sputtering, and variable coating thickness, adding transparency, better sound communication with the membrane, and reduction of parasitic internal resonances and reflections. New technology, named 'Golden Drops', is used in all our large capsule microphones from 2008.

PRODUCTS

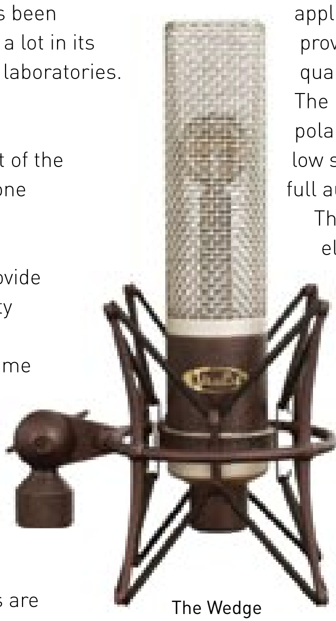
In 2008-2009, Violet introduced several new microphones and accessories.

The Wedge

The Wedge is designed as Violet's next generation of universal-wide application studio microphone, providing perfect audio recording quality for an affordable price. The microphone has a cardioid polar pattern, high output, very low self-noise, distortion, and a full audio spectrum of sound.

The newly designed VD21 true electrostatic single diaphragm capsule uses Violet's latest technologies, and is damped from vibrations and resonances. Acoustically open long double mesh head provides the highest sound transparence and naturalness.

The Wedge comes with a stand holder, but can be mounted on different optional (VSM-WD, PSM, or GSM) studio shockmounts for additional protection from external subsonic interference.


The Wedge

The Garnet

The Garnet is a tube microphone with a large dual diaphragm capsule. The VD47 capsule in combination with tube and custom-made

The Garnet

transformer provides a sweet, dense tone, recognised from the most famous vintage vocal microphones

The internal preamplifier is based on a class-A discrete vacuum tube circuit designed under the highest audiophile standards.

The microphone has nine selectable polar patterns from omni to cardioid, to figure of eight with nine mini switches on the front panel of the power supply unit. A soft-start PSU comes with the Garnet. An included JSM elastic shockmount protects the microphone from stand rumble, subsonic vibrations, and external shocks.

The Garnet can be used for a variety of high-end professional recording situations. It excels when capturing vocals, speech and choir, but also performs well capturing musical instruments, orchestra, and most other sound sources. The Garnet also performs well for broadcast and television studios, as well as for film and video industries.

The Garnet PSU

The Pearl Vocal

The Pearl Vocal is designed for use with today's modern improved quality P.A. systems as high-end vocal stage microphones. The microphone has a cardioid polar pattern, low handheld noise, and high output.

With a new VD21 true electrostatic single diaphragm capsule, the Pearl Vocal brings studio quality sound onto the stage.

A dual mesh head plus an internal dual mesh cone-shape pop filter effectively protects the diaphragm from plosive sounds of vocals and speech.

The microphone is ready for handheld or stand use, but can be mounted on optional external studio (PSM or GSM) shockmounts for additional protection from external subsonic interference.

An optional Reflection Ring adds warmth, reduces feedback, and protects against wrong handheld use of the microphone.

The Pearl Vocal

The Pop Filter

One of the last additions to Violet Design's accessories range is the Metal Mesh Dual Cone Pop Filter. It is composed of dual layers of fine mesh screens, standing in a holder ring with lock.

The main difference from other filters is the shape of the surfaces – they are conical. Thanks to unparallel surfaces, air-waves are 'killed' very effectively, and popping sounds are blocked. The energy of plosives is reduced, but without changing the sound: audio becomes uncoloured.

Thanks to its effectiveness the Pop Filter can be located close to microphones, making for a compact set-up.

The Pop Filter comes in two sizes – 42mm and 60mm diameter. This means the filter can work with the Black Knight, Dolly, Wedge, Globe, and all microphones with the same body diameter (U47).

The Pop Filter comes in Black, Brown and Silver colours.

The Pop filter

USERS:

Our microphones are successfully used by dozens of famous producers, recording engineers, and musicians, starting from Bruce Sugar (Elton John, Ringo Starr, Paul McCartney, Ozzy Osbourne), David Kahne (Paul McCartney, Kelly Clarkson, Sublime, Fishbone), Joe Barresi (Tool, Queens of the Stone Age, Melvins), John Paterno (Robbie Williams, Joan Osborne, Los Lobos, 'Boston Legal' TV show) to B2, a famous Russian Band.

Other

All other microphones, from the flagship Flamingo ME to the Finger, are still available. You can see them on the Violet website at **www.violet-design.com**

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Microphone Manufacturers Directory

ADK MICROPHONES

ADK Microphones was established in 1997 by recording engineer and vintage microphone collector, Larry Villella, to replicate the sonic attributes of vintage European microphones through spectrum analysis and computer modelling of the response curves of his favourite microphones.

A wide range of FET, transformerless and tube microphones make up the ADK range, which has just added the Vienna MKII and Hamburg MKII.

www.adkmicrophones.com

AEA MICROPHONES

Audio Engineering Associates' (AEA) Wes Dooley drew upon his 40 years of experience and passion for ribbon microphones when he reintroduced the AEA R44 (based on the RCA 44) back in 1998. Since then AEA has introduced mic preamps specifically for ribbon use alongside other ribbon microphones, including the well-regarded R84.

www.wesdooley.com

AEVOX AUDIO

Handmade in Belgium, Aevox Audio produces a range of micro/lavalier microphones and accessories for use with portable recorders, video cameras, wireless packs and computers. The range includes the IE (In Ear) stereo MKII microphones for discreet or binaural recording, power adapter, wind shield, and the Omni Classic M MKII which boasts extended frequency response and reduced handling noise.

www.aevox.be

AKG

2007 marked the 60th anniversary for AKG. Founded in Vienna in 1947 AKG has grown a great deal from five workers hand building microphones, to become one of the principal microphone manufacturers with a product range that spans all areas of professional audio, many becoming established classics. AKG microphones include the Blue Line range of modular mics; lavalier; instrument; live, recording… the list is endless.

www.akg.com

AMBIENT RECORDING

Ambient Recording was founded in 1989, and was originally a company dealing with sound equipment rentals and transfers.

It now manufactures a number of products for location recording based on the founders' considerable experience.

Ambient has a couple of microphones, the Tinymike, a mini camera mounted shotgun microphone and the Emesser bi-directional mini microphone.

www.ambientaudio.com

AMG ELECTRONICS

Sitting on the Surrey/Hampshire borders, AMG Electronics produces a number of different configurations of its C-ducer (Capacitive-Trans-Ducer) microphone.

Available in various lengths, 1mm thick, flexible and light weight, the C-ducer can be formed to all shapes of instrument surface.

www.c-ducer.com

AMT

Applied Microphone Technology has been manufacturing microphones for seventeen years, and takes the approach of producing microphones for specific instruments without compromise.

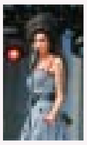
www.appliedmic.com

AUDIO LTD

Based in High Wycombe, Audio Ltd produces a number of wireless solutions for theatrical and broadcast applications. The Envoy range is designed for ENG news crews who are looking for high quality and reliability. The RMS2040 range of wireless products received a recent edition with the miniTX wireless transmitter.

www.audioltd.com

AUDIO TECHNICA



Audio Technica began back in 1962 in Tokyo's Shinjuku-Ko district manufacturing state of the art stereo phono cartridges. Now a global group, Audio Technica is involved in the manufacture of audio equipment across the whole spectrum of the industry.

Its range of microphones illustrates this diversity with cost effective solutions for semi-pro use through to high end models for applications in live, broadcast, studio, commercial and industrial.

www.audio-technica.com

AUDIX

Starting life back in 1984 in Redwood California, Audix moved to Oregon in 1991 where it established a state of the art manufacturing facility, where the quality of its microphones could be controlled from start to finish.

Audix focuses on simple, elegant designs with microphones covering applications in corporate, live, broadcast, and studio. Amongst them is the respected D-series of drum microphones.

www.audixusa.com

AVLEX

In Kansas City, USA, Avlex is about rugged cost effective solutions principally for presentation and theatre applications. Other audio applications are covered with microphone ranges with different brand names. Mipro microphones are a line of wireless systems for location and broadcast use, and Superlux microphones are for more studio specific uses.

www.avlex.com

AZDEN CORPORATION

East coast USA Azden Corporation has some 40 years of experience utilising CAD and SMT technology to create a number of standard and wireless transduction solutions. Originally an OEM manufacturer for many of the world's best known brands, the last 15 years has seen Azden raise its own brand identity, providing low cost microphone systems for event and wedding videography use.

www.azdencorp.com

BEHRINGER

Uli Behringer founded the company that takes his name back in 1989 in Germany. Since then Behringer has grown to have offices in 10 countries distributing a wide range of audio products. Behringer has a range of general purpose dynamic and condenser microphones including the B-2 Pro and stereo pair C-2.

www.behringer.com

BEIJING 797 AUDIO

Founded in 1952, Beijing 797 Audio is now a very large concern with development, manufacturing and testing facilities. It has the largest anechoic chamber in Asia and its microphone range encompasses condensers, dynamics and a wide variety of wireless and electret microphones for broadcast and presentation use.

www.797audio.com

BERLINER AUDIO

USA-based Berliner Audio introduced its first microphone, the CM33 hand-matched stereo pair in 2007 and has since followed this with four further models. The range fit a variety of recording applications.

www.berlineraudio.com

BEYERDYNAMIC

beyerdynamic has evolved into one of the better known manufacturers since its beginnings back in 1924. Developments in a number of audio areas continue, and beyerdynamic condenser, ribbon and general dynamic microphones, still form the backbone of many studios' mic collections.

www.beyerdynamic.com

BLUE MICROPHONES

Headquartered in Westlake Village in California, and with engineering and manufacturing facilities in Latvia, Blue Microphones has come a long way since 1995 when founders Skipper Wise and Martin Saulespurens put together a few hand built microphones for fellow musician friends.

Blue has some of the most distinctive looking mics for recording purposes, and through their Vintage Mic Store has further examples as well as vintage mic restoration services.

www.bluemic.com

BOCK AUDIO DESIGNS

From 1996 to 2006, former studio tech (Hit Factory, Oceanway) David Bock ran Soundelux Microphones. Concerned with producing high-end microphones for recording applications, David continues to develop his designs through southern California-based Bock Audio.

www.bockaudiodesigns.com

microphones 2009

BRAUNER MICROPHONES

Dirk Brauner was developing ideas with tube microphone circuits back in 1993 looking to create the world's best tube microphone. Initially creating a limited number of handcrafted microphones based on his VM1 design, demand led to the start of Brauner Microphones in 1995 which now boasts an impressive collection of microphones still headed up by the VM1.

www.brauner-microphones.com

CAD MICROPHONES

CAD Microphones manufactures a variety of visually distinct condenser, tube, ribbon, and instrument-specific microphones.

www.cadmics.com

CASCADE MICROPHONES

US-based Cascade microphones produces a wide variety of types, but is probably best know for it's range of ribbon microphones and the retro styling of many of its designs, including the Fat Head II.

www.cascademicrophones.com

CHAMELEON LABS

Chameleon is a relatively new company with the strap line "Value Conscious Audio." It makes a selection of audio products, including the TS-1 Tube Pencil condenser microphone, and the TS-2 large diaphragm tube condenser microphone.

www.chameleonlabs.com

CHARTEROAK ACOUSTICS

Founded by producer/ engineer Michael Deming in Connecticut in 2002, CharterOak is all about creating the classic microphones of tomorrow. All tube and solid state microphones are assembled and inspected by hand, with each being studio tested before shipping to the customer.

www.charteroakacoustics.com

COLES ELECTROACOUSTICS

Coles in Hertfordshire continues to manufacture the BBC-designed ribbon microphones that include the ever-popular 4038.

www.coleselectroacoustics.com

COUNTRYMAN ASSOCIATES

With more than 30 years of experience, Countryman Associates manufactures microphones for a variety of live applications including theatre, presentation and live music. The range consists of a number of mini and micro microphones for these situations.

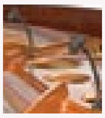
www.countryman.com

CROWN

From humble beginnings back in 1947 through radio enthusiast Clarence C. Moore, Crown has grown into a company manufacturing products across the whole pro audio spectrum. Its microphone range includes models that encompass the pro audio world. These include Boundary, PZM, Lectern, mini, as well as conventional studio microphones.

www.crownaudio.com

DPA MICROPHONES



In 1992, Danish company Bruel and Kjaier took the decision to spin off its pro audio division and outsource sales and service of its 4000 series microphones to the former employees that designed them. It formed Danish Pro Audio and since 1994 has introduced new products into its line. These include mini, compact, large diaphragm and reference test microphones, and also the only phantom powered underwater microphone, the P48 Hydrophone.

www.dpamicrophones.com

EARTHWORKS AUDIO

Formed in New Hampshire by David Blackmer, the inventor and founder of dbx, Earthworks Audio looks to develop the next generation of audio products, including microphones with its High Definition Microphone range. Both general use and instrument specific microphones are designed to pick up sound with much higher fidelity than conventional designs.

www.earthworksaudio.com

ELATION

Many decades of research and development have led Russian company Elation to manufacture its own microphones. Limited to a single large and single small diaphragm condenser microphone, and bass drum mic.

www.elation-mics.com

ELECTROVOICE

Electrovoice has been developing pro audio products principally in the area of sound reinforcement for over 80 years. Its microphone range illustrates this orientation in both its standard and wireless microphone products.

www.electrovoice.com

FOSTEX

Founded by the Foster Electronic Company in Tokyo back in 1973, initially to deliver high quality speaker components to customers for Foster, which was well established in the development of transducer technologies. Fostex has come to establish itself in location recording and broadcast audio applications, with a number of mics for these areas.

www.fostex.com

GROOVE TUBES

Formed in California in the late 1970s by Aspen Pittman, who gathered together some technicians to explore why it was that tubes performed and sounded so different. From a garage workshop to a global company, Groove Tubes now produces a range of tube, FET and ribbon microphones that still includes the MD1.

www.groovetubes.com

HHB COMMUNICATIONS

HHB entered the mic market with an innovative range of recording mics aimed at audio journalists and field recordists.
In collaboration with Sennheiser, HHB now has a range of devices with various options, including the increasingly popular FlashMic.

www.hhb.co.uk

HEBDEN SOUND

Since 2003, Sheffield-based Hebden Sound Ltd has supplied the HS3000 series of interchangeable capsule microphones, which are still only available directly from Hebden Sound.

www.hebdensound.com

HEIL SOUND

The origins of Heil Sound date back to the 1950s when organist Bob Heil, began to mentally dissect the sounds around him. Heil began to experiment with design and manufacture of organs. He then transferred his experience to other musical forms with great success. The 90s saw Heil move into the microphone market with the HC series, and now Heil has a range that leans towards live applications.

www.heilsound.com

HOLOPHONE

Musician and sound designer Michael Godfrey founded Holophone in Toronto, Canada, in 1994 looking to deliver the most realistic listening experience from recorded audio. Holophone has a number of microphone products that can accommodate surround applications.

www.holophone.com

HORCH AUDIO

German company Horch Audio manufactures three retro styled tube microphones, the RM3, RM4 and RM2J for high-end recording work.

www.horchaudio.de

JJLABS

Started in Stockolm by Johan and Jerker Antoni in 2000, JJLabs has a comprehensive range of tube, ribbon, and conventional condenser and dynamic microphones. It also has the unique Ehrlund triangle membrane condenser microphone designed to deliver the desirable traits from both small and large diaphragm condensers.

www.jjlabs.se

JOEMEEK

Referencing many of the experiments made by Joe Meek in the early to mid 1960s, Joemeek continues to provide cost effective solutions for project and pro audio, with a range of general purpose small and large diaphragm condenser and dynamic microphones.

www.joemeek.com

JOSEPHSON ENGINEERING

Since 1998 Josephson Engineering, as well as producing and supplying capsules to other microphone manufacturers, has produced its own range of microphones for studio, location, live and instrument specific applications.

www.josephson.com

JZ MICROPHONES

Over the past decade, Latvian manufacturing company Scruples ventured into the pro audio market with products including mics under the Violet brand. Scruples created a spin off company, JZ Microphones, that has now been established to concentrate on microphone development.

www.jzmic.com

KATAMOUNT ENTERPRISES

Katamount Enterprises was established in Canada in 1999 as a distribution company for post and broadcast, but now manufactures its own products including its KAT66 Lavalier mics.

www.katamount.com

LAUTEN AUDIO

Founded by Brian A Loudenslager, Lauten Audio is committed to producing high-end microphones with an 'original sound'. Loudenslager worked with some of the biggest microphone brands in the world before forming the company whose ethic now is to design mics that present an accurate rendition of the source while adding an artistic character of its own. Its line-up comprises the Oceanus, Clarion, Torch, and Horizon.

www.lautenaudio.com

LAWSON MICROPHONES

Founded by Gene Lawson in 1979, and now hand crafted in Nashville, Lawson Microphones' range of award winning high end tube and FET microphones, with their distinctive look, are desired the world over.

www.lawsonmicrophones.com

MANLEY LABORATORIES

Since 1989, and now out in Chino California, Manley Laboratories has focused on the development of a number of products based on tube designs. Amongst these are the range of Manley tube microphones, which include the Manley stereo tube reference microphone.

www.manleylabs.com

M-AUDIO

Formed in 1988, and now part of the Avid Technologies, M-Audio is focused on computer based products and those aimed to provide solutions to mobile musicians. The M-Audio microphone selection includes a number of general-purpose units including the lollipop large diaphragm condenser, Luna.

www.m-audio.com

MBHO

Established in Obrighelm in 1962 by Herbert Haun, MBHO has been producing high quality microphones ever since. Ninety five percent of the MBHO range is still handmade and includes both modular and fixed capsule condenser and dynamic microphones.

www.mbho.de

MERCENARY AUDIO

The straight-talking team at Mercenary Audio are all engineers who sell an impressive array of high-end audio equipment. They also manufacture the KM-69, born out of a need for a KM-84i for hi-hats. The sound of the mic was created over time solely by listening and using, and was designed to a particular aesthetic end rather than a set of numeric specifications.

www.mercenary.com

MICROTECH GEFELL

The origins of Microtech Gefell can be traced back to 1928 when one Georg Neumann and colleague Erich Rickmann formed Georg Neumann and Co. In 1943, production moved to Gefell, where many years of developing and producing some classic products took place. The range of Microtech Gefell microphones is extensive and draws from this history.

www.microtechgefell.de

MICW

Designed, developed, and manufactured by BSWA Technology, the MicW brand delivers professional microphones for recording, broadcasting, and live music applications. MicW was established in 1998 and claims to be the first company to introduce the electro-static transit response technique for microphone evaluation, as well as instigators in the use of polymer diaphragms for measuring microphone structures.

www.mic-w.com

MILAB MICROPHONES

The Milab story begins in 1941 with Rune Rosander producing crystals, and then subsequently carbon and dynamic mics. In the late 1960s, the rectangular capsule and double-sided rectangular capsule were developed and are still produced today. The name Milab came into being in 1970 and now Milab manufactures a full range of microphones including the brand new BDM-01 bass drum microphone.

www.milabmic.com

MOJAVE AUDIO

David Royer established Mojave Audio in his garage in Fullerton California in 1985. Known for his ribbon microphone designs with Royer Labs, Mojave Audio is the outlet for David Royer's tube microphone designs.

www.mojaveaudio.com

MXL MICROPHONES

MXL Microphones are designed and manufactured by US-based manufacturers Marshall Electronics. The brand has a variety of standard microphone types aimed at the expanding 'cost-effective' market for good quality products.

www.mxlmics.com

NADY SYSTEMS INC

Founded by John Nady in 1976, Nady Systems Inc was, and remains, at the forefront of wireless mic design. Nady was amongst the first to address the issues of noise reduction in wireless systems and, by 1985, eighty percent of the world's top artists were using Nady systems.Nady has branched out and now includes a comprehensive range of studio condenser, ribbon, instrument specific, and USB mics.

www.nady.com

NEUMANN

With roots going back to Berlin in 1928, Neumann has been involved in the design and manufacture of a wide range of audio products, but it is with microphones that the name is most associated. Neumann became part of the Sennheiser group in 1991, and this branch of Neumann is focused on continuing its long tradition of high quality industry wide microphones.

www.neumann.com

OKTAVA

For many years, being the largest manufacturer of electro-acoustic transducers in Russia has given Octava a great background for producing their own microphone range. This is now a large collection of tube, ribbon, electret, and conventional microphones for all manner of studio applications.

www.oktava-online.com

PEARL MICROPHONES

Pearl shares the same origins as Milab and owes much to the designs of Rune Rosander. Based in Sweden, Pearl produces a number of conventional and tube mics.

www.pearl.se

PEAVEY

After graduating college in 1965, Hartley Peavey started his company using the logo he came up with while doodling in his notebook. Peavey's products are known the world over and have mic units for use in the studio, speciality, and sound reinforcement market.

www.peavey.com

PELUSO MICROPHONE LAB

All Peluso mics are custom designed, handcrafted, and individually tested in Virginia. The range features tube, ribbon, and solid state versions that benefit from the company's 26 years of experience in repairing and restoring all brands of vintage and modern microphones. Furthermore, all mics are protected by a three year warranty for peace of mind.

www.pelusomicrophonelab.com

RED MICROPHONES

As a spin off from the Latvian manufactured Californian based Blue Microphone Company, Red Microphones' pedigree is a good one. The company offers the Type A tube and Type B solid-state lollipop style microphones with interchangeable capsules.

www.redmic.com

RICSONIX

Based in Australia, Ricsonix manufactures several pin/button microphones designed to be hidden behind a button or badge. The MITS-2 features a built in windshield.

www.ricsonix.com

RODE MICROPHONES

Rode came into existence after Henry and Astrid Freeman emigrated from Sweden to Australia in 1967. Their background in audio product development within their own Freeman Group of companies led to the development and release of the first Rode Microphone in 1990.

The Rode range has grown in number and reputation since then, with quality, affordable tube and conventional microphones for broadcast and studio use.

www.rodemic.com

ROYER LABS

Formed in 1998 to bring David Royer's ribbon designs to the world, Royer produces a wide and respective range of ribbons that include unique tube and phantom powered ribbon microphones.

www.royerlabs.com

SAGE ELECTRONICS

Sage Electronics was founded in 2002, and is operated by long-time record producer Phillip Victor Bova, his wife Janet Kirby and their son Philip Shaw Bova. It produces a number of pro audio products that includes the SE-BB1 Bova Ball Spherically mounted condenser microphone.

www.sageelectronics.com

microphones 2009

SAMSON

Samson began 26 years ago designing and producing wireless mic systems. Since then Samson has diversified into a number of areas of audio equipment production that includes a large number of conventional, ribbon, and USB microphones.

www.samsontech.com

SANKEN MICROPHONES

Sanken Microphones is based in Tokyo and has focused on producing simple original condenser and dynamic microphone designs for studio, broadcast, and live use since 1926.

www.sanken-mic.com

SCHERTLER

Schertler started life in the early 1980s in Switzerland with a mission to produce mics for faithful capturing of acoustic string instruments. Schertler now has a well-established and comprehensive range of contact microphones for a cross section of acoustic string instruments.

www.schertler.com

SCHOEPS

Founded in 1948 by Dr Schoeps, the company has specialised in the design and manufacture of high quality condenser microphones for over half a century. The Schoeps range is now an extensive one with condenser solutions for all manner of studio, broadcast, live, and location scenarios, as well as surround applications.

www.schoeps.de

SD SYSTEMS

A group of sax players banded together to create a mic able to capture their instrument while facilitating stage freedom. In 1981 SD Systems was born with the bell-mounted solution that they developed, the LCM85. The SD Systems microphone range now encompasses mini and contact mics for a wide range of instruments.

www.sdsystems.com

SE ELECTRONICS

The origins of sE Electronics are with Mr Siwei Zou, a classical musician from Shanghai who developed products in Shanghai before entering the European market in 2003. The mic product line includes tube, ribbon, modular and conventional microphones. The company's newest addition, the RNR1 active ribbon microphone, is the fruit of a joint collaboration with Rupert Neve.

www.seelectronics.com

SENNHEISER

Sennheiser has been delivering top of the line pro audio for more than 50 years, providing the backbone of many studios' microphone cabinets, whether it be music, broadcast, post, live, or location. Sennheiser has a microphone range that is truly diverse covering every nook and cranny of the industry.

www.sennheiser.co.uk

SHURE

Founded in Chicago in 1925 selling radio parts, Shure produced its first microphone in 1932 and has not looked back. It now has a collection of wired and wireless mics including the ubiquitous SM58. More recently Shure Inc. has acquired Crowley and Tripp Ribbon Microphones from Soundwave Research Laboratories.

www.shure.com

SONTRONICS

Designed and developed in the UK and hand crafted in Shanghai, Sontronics produces uncompromising high performance microphones at affordable prices. The range includes the distinctive condenser, tube, and ribbon designs.

www.sontronics.com

SONY

Sony has a long history when it comes to microphones and has produced a few classics in its time both old and new. The current range reflects Sony's continued involvement in all pro audio arenas.

www.sonybiz.net

SOUNDFIELD

Based in the UK and formed in 1993, Soundfield Limited manufactures and continues to develop its unique multi capsule tetrahedral design for both enhanced stereo and multi-channel applications.

www.soundfield.com

SOUNDKING

The Soundking Group Ltd of China specialises in the research and development of a variety of products in pro audio. In the microphone category, it has a wide range of mic types and kits.

www.soundking.com

SOUNDMAN

Headquartered in Berlin and founded in 2001, Soundman have developed the OKM dummy head microphone. An electret condenser microphone for use in live, voice, and other environmental recording applications. The company also produces the OKM II Rock Studio version.

www.soundman.de

STUDIO PROJECTS

In conjunction with partner company 797 Audio, US-based Studio Projects looks to provide a quality general purpose microphone product with German type build standards at a fraction of the cost. The company has recently released the CS series of studio microphones..

www.studioprojectsusa.com

SYMPHOTEC

German company Symphotec set about designing a microphone specifically for the purpose of producing a better, more faithful, reproduction of orchestral and concert hall presentations. This resulted in the Symphotec Orchestral Management System.

www.symphotec.de

T.H.E

Based in Connecticut, Taylor Hohendahl Engineering produces beautifully crafted microphones designed by Andy Hohendahl. The range includes reference condensers, modular mics, and a binaural sphere.

www.theaudio.com

TRAM LAVALIERS

TRAM manufacturers the famous TR-50 lavalier omni-directional mic, which comes with a huge range of accessories for many different configurations and mountings.

www.tram-usa.com

TRANTEC

Based in London and running now for over a decade, Trantec was formed by Steve Baker, Dave Binks and Terry Maybe, who developed and subsequently specialised in wireless mic solutions. Trantec now supply to broadcast and theatre clients. The Trantec range includes the SD7000 digital wireless.

www.trantec.co.uk

TRINNOV AUDIO

Trinnov Audio specialises in the digital processing of acoustic fields. Trinnov has produced the SRP Surround array of microphones, based on a breakthrough special high resolution technology.

www.trinnov.com

VIOLET DESIGN

Violet has been developing and manufacturing in Latvia since 2003, where it produces a range of distinctive and colourful microphones – a combination of tube, solid-state, large and small diaphragm condensers.

www.violet-design.com

VOICE TECHNOLOGIES

Voice Technologies is focused on mics for use in broadcast, theatre, film, video, and conference applications. A range of miniature lavaliers and headset mics are available.

www.voicetechnologies.net

WUNDER AUDIO

Wunder Audio has come from refurbishing vintage equipment to producing products that give a big nod to past classics. Wunder produces handmade transformers for all of its products including a range of high-end tube mics.

www.wunderaudio.com

XXL INSIDE

XXL supplied technical services to some of the top names in the audio sector before venturing into production. XXL's mic collection includes studio condenser and dynamic, miniature lavalier, and headset microphones.

www.xxlinside.com

ZAXCOM

Known primarily for its Deva location recorders and digital wireless systems, Zaxcom produces the ZFR800 handheld digital recording mic for field recording and broadcast journalism applications.

www.zaxcom.com

Microphone Basics

The foundation of good microphone practice is technical knowledge. Blažo Guzina provides a run-down of the basics for anybody just getting to grips with the wibbly bits...

Microphones have different overall physical and electrical characteristics and are classifiable into three main groups, based on the physical principle of converting sound into an electrical signal: electrodynamic coil, electrodynamic ribbon, and electrostatic (or condenser) microphones.

Dynamic Microphone

The electrodynamic moving-coil microphone has a coil of finely wrapped wire precisely suspended between the poles of a magnet and attached to a diaphragm. Soundwaves drive the diaphragm, which vibrates in a high-level magnetic field. In the coil, this movement induces a voltage, which corresponds to the sound pressure.

Dynamic microphones are very rugged and handle high sound pressures without overloading. They are reliable and virtually never distort the sound signal. They are insensitive to extreme heat, cold, and high air humidity. Dynamic microphones can usually withstand extreme environmental conditions such as temperatures from -25°C to +70°C.

Ribbon Microphone

The electrodynamic ribbon mic has a thin metal foil in the form of a corrugated ribbon suspended in a magnetic field. Sound pressure variations displace the diaphragm, in which an electrical current is induced depending on the amplitude and frequency of sound. Due to the short length of the ribbon compared to the moving coil, its output electrical impedance is less than 1 Ω. This resistance is too low to directly connect to the microphone input of a mixing desk or recorder, so a step-up transformer is needed to increase the impedance up to the 150Ω to 600Ω range.

Due to constructional improvements, modern ribbon mics are suitable for outdoor and handheld use. They are prized for their warm, smooth, yet delicate sound quality.

Condenser Microphone

The electrostatic (condenser) microphone uses a transducer element consisting of a vibrating diaphragm (very thin foil) and a fixed metal plate (back electrode).

These two electrodes make up a condenser (capacitor) charged by an externally applied voltage (polarization voltage) or carrying its own permanent electrical charge, as with an electret microphone.

When soundwaves vibrate the diaphragm, the capacitance of the condenser changes simultaneously, thus producing an output voltage that varies with the intensity and frequency of the sound.

Condenser microphones usually have a flat frequency response, high sensitivity and good ability to follow sudden, percussive sound events immediately. This is described as good transient response.

Condenser microphones require an impedance converter in the form of a preamplifier to match the very high output impedance to low impedance microphone inputs. This amplifier fits within the body of the microphone in order to prevent hum, noise pickup and the losses of the signal level due to the length of the circuit from the diaphragm to the amplifier.

Phantom Power

Condenser microphones need a DC supply voltage. Except for battery operated microphones, the voltage usually comes through the microphone cable. The positive (+) side of a DC voltage connects to both signal wires of a balanced line and the negative (ñ) side to the cable screen.

An exception is the electret condenser microphone. This type of microphone has the polarizing charge stored permanently within the diaphragm or on the backplate. No external power is required to charge the diaphragm.

Polar Patterns

Apart from the basic differences in the physical principle of operation, the main factor that influences the choice of a microphone is its polar pattern.

Polar pattern, also known also as polar response, is a chart that graphically represents microphone sensitivity with respect to the direction of soundwaves arriving at its membrane.

A chart is usually plotted in the form of a 360° polar diagram, with the on-axis 0° direction clearly marked. It is possible to classify microphones into two main groups, based on their directional characteristics: non-directional and directional microphones.

In principle, a non-directional microphone is a pressure-operated electroacoustic transducer. Its response to acoustic sound pressure is omnidirectional, meaning that the diaphragm reacts equally to all soundwaves arriving at its surface, regardless of their direction.

A typical example of a directional microphone is a pressure-gradient transducer. This type has a bidirectional (or figure-of-eight) polar diagram. This means the microphone reacts to differences in pressure between the two sides of a diaphragm.

Ribbon microphones are the most common type with a bidirectional polar response. A metal ribbon diaphragm is equally sensitive to soundwaves arriving from front and rear axes.

All other known directional patterns are obtainable as a result of a combination of the aforementioned two main polar pattern types. The number of variations is practically unlimited.

When the outputs of an omnidirectional (pressure) and bidirectional (pressure-gradient) pickup pattern are combined, the best known resulting polar responses that are obtainable are cardioid, supercardioid, and hypercardioid. Their common name is unidirectional microphones.

A unidirectional microphone is most sensitive to soundwaves arriving from one direction, in front of the microphone, but softens sounds from the sides or rear.

The cardioid microphone is sensitive to sounds from a broad angle in front of the microphone. Generally, it is about 6dB less sensitive at the sides, at 90° and 270°, and 15 to 25dB less sensitive to the rear.

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for Studio Recording

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